

The NAEOTOM Alpha class

Photon-counting CT

Overview of selected publications

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1. General / Overview

2025

NAEOTOM Alpha

Photon-counting CT: An updated review of clinical results

Judith van der Bie, Thom van der Laan, Marcel van Straten, Ronald Booij, Daniel Bos, Marcel L. Dijkshoorn, Alexander Hirsch, Edwin H.G. Oei, Ricardo P.J. Budde.
European Journal of Radiology, 2025,112189, ISSN 0720-048X.<https://doi.org/10.1016/j.ejrad.2025.112189>

NAEOTOM Alpha

Getting Started with Photon-counting CT: Optimizing Your Setup for Success

Fides R. Schwartz, Bari Dane, Shan Su, Khanin Khanungwanitkul, Liqiang Ren, and Lakshmi Ananthakrishnan
RadioGraphics 2025 45:2. <https://doi.org/10.1148/rq.240106>

RECOMMENDED

2024

NAEOTOM Alpha

Photon counting CT versus energy-integrating CT: A comparative evaluation of advances in image resolution, noise, and dose efficiency.

Heismann, B., Kreisler, B., & Fasbender, R. (2024).
Medical Physics, July, 1–10. <https://doi.org/10.1002/mp.17591>

NAEOTOM Alpha

Photon-Counting Detector CT: Advances and Clinical Applications in Cardiovascular Imaging.

Hagar, M. T., Schlett, C. L., Oechsner, T., Varga-Szemes, A., Emrich, T., Chen, X. Y., Kravchenko, D., Tremamunno, G., Vecsey-Nagy, M., Molina-Fuentes, M. F., Krauss, T., Taron, J., Schuppert, C., Bamberg, F., & Soschynski, M. (2024).
RoFo. <https://doi.org/10.1055/a-2452-0288>

NAEOTOM Alpha

A Review of Applications of Photon-Counting Computed Tomography in Head and Neck Imaging.

Dogra, S., Shekhrjaka, N., Moonis, M.G. (2024).
British Journal of Radiology, tqae226, <https://doi.org/10.1093/bjrt/qgae226>

NAEOTOM Alpha

Photon-counting computed tomography in radiology.

Algin, O., Tokgoz, N., & Cademartiri, F. (2024).
Polish Journal of Radiology, 89, 433–442. <https://doi.org/10.5114/pjr/191743>

NAEOTOM Alpha

Photonenzählende Detektor- Computertomographie- Paradigmenwechsel in der kardialen CT-Bildgebung

Kravchenko, D., Christian, Y., Milan, L., Tremamunno, G., Schlett, A. V. C. L., Bamberg, F., Emrich, T., & Hagar, M. T. (2024).
1–7. <https://doi.org/10.1007/s00117-024-01380-3>

NAEOTOM Alpha

Abdominal applications of photon-counting CT

Khanungwanitkul, K., Sliwicka, O., Schwartz F.R.,
British Journal of Radiology (2024) <https://doi.org/10.1093/bjrt/qgae206>

NAEOTOM Alpha

Photon-counting detector computed tomography in cardiac imaging.

Sharma, S. P., Lemmens, M. J. D. K., Smulders, M. W., Budde, R. P. J., Hirsch, A., & Muhl, C. (2024).
Netherlands Heart Journal. <https://doi.org/10.1007/s12471-024-01904-5>

NAEOTOM Alpha

Photon-Counting Computed Tomography Angiography of Carotid Arteries : A Topical Narrative Review with Case Examples.

Meloni, A., Cau, R., Saba, L., Positano, V., Gori, C. De, Occhipinti, M., Celi, S., Bossone, E., Bertacchi, J., Punzo, B., Mantini, C., Cavaliere, C., Maffei, E., & Cademartiri, F. (2024).
Diagnostics 2024, 14, 2012. <https://doi.org/10.3390/diagnostics14182012>

NAEOTOM Alpha

Technical principles , benefits , challenges , and applications of photon counting computed tomography in coronary imaging : a narrative review.

Meloni, A., Maffei, E., Positano, V., Clemente, A., Gori, C. De, Berti, S., Grutta, L. La, Saba, L., Bossone, E., Mantini, C., Cavaliere, C., Punzo, B., Celi, S., & Cademartiri, F. (2024).
14(4), 698–724. <https://doi.org/10.21037/cdt-24-52>

NAEOTOM Alpha

Photon counting CT clinical adoption, integration, and workflow.

Dane, B., Froemming, A., Schwartz, F. R., Toshav, A., Ramirez-Giraldo, J. C., & Ananthakrishnan, L. (2024). Abdominal Radiology. <https://doi.org/10.1007/s00261-024-04503-5>

NAEOTOM Alpha

Photon-Counting Detector Computed Tomography: Techniques and Practical Clinical Applications. Advances in Clinical Radiology.

Wu, P. W., Zhang, D., Primak, A., Booi, R., Winant, A. J., & Lee, E. Y. (2024). <https://doi.org/10.1016/j.yacr.2024.05.004>

NAEOTOM Alpha

Comprehensive Review of External and Middle Ear Anatomy on Photon Counting CT.

Rao, D., Murray, J. V., Agarwal, A. K., Sandhu, S. J., & Rhyner, P. A. (2024). American Journal of Neuroradiology <https://doi.org/10.3174/ajnr.A8359>

NAEOTOM Alpha

Multi-institutional Protocol Guidance for Pediatric Photon-counting CT.

Horst, K. K., Cao, J. Y., McCollough, C. H., El-Ali, A., Frush, D. P., Siegel, M. J., Ramirez-Giraldo, J. C., O'Donnell, T., Bach, S., & Yu, L. (2024). Radiology, 311(2), e231741. <https://doi.org/10.1148/radiol.231741>

NAEOTOM Alpha

Photon-counting detector CT – first experiences in the field of musculoskeletal radiology

Bette, S., Risch, F., Becker, J., Popp, D., Decker, J. A., Kaufmann, D., Friedrich, L., Scheurig-münkler, C., Schwarz, F., & Kröncke, T. J. (2024). RöFo <https://doi.org/10.1055/a-2312-6914>

NAEOTOM Alpha

Standardizing technical parameters and terms for abdominopelvic photon-counting CT: laying the groundwork for innovation and evidence sharing.

Leng, S., Toia, G. V., Hoodeshenas, S., Ramirez-Giraldo, J. C., Yagil, Y., Maltz, J. S., Boedeker, K., Li, K., Baffour, F., & Fletcher, J. G. (2024). Abdominal Radiology, 0123456789, 15–21. <https://doi.org/10.1007/s00261-024-04342-4>

NAEOTOM Alpha

Approaches, advantages, and challenges to photon counting detector and multi-energy CT.

Toia, G. V., Mileto, A., Borhani, A. A., Chen, G. H., Ren, L., Uyeda, J. W., & Marin, D. (2024). Abdominal Radiology. <https://doi.org/10.1007/s00261-024-04357-x>

NAEOTOM Alpha

Photon - Counting Detector Computed Tomography (PCD - CT): A New Era for Cardiovascular Imaging ? Current Status and Future Outlooks.

Lacaita, P. G., Luger, A., Troger, F., Widmann, G., & Feuchtner, G. M. (2024). Journal of Cardiovascular Development and Disease. 11, 127. <https://doi.org/10.3390/jcdd11040127>

NAEOTOM Alpha

Protocol optimization for abdominal imaging using photon-counting CT: a consensus of two academic institutions.

Schwartz, F. R., Marin, D., Lofino, L., Abadia, A., O'Donnell, T., & Dane, B. (2024). Abdominal Radiology. <https://doi.org/10.1007/s00261-024-04254-3>

NAEOTOM Alpha

Photon-counting CT in Thoracic Imaging: Early Clinical Evidence and Incorporation Into Clinical Practice.

Fletcher, J. G., Inoue, A., Bratt, A., Horst, K. K., Koo, C. W., Rajiah, P. S., Baffour, F. I., Ko, J. P., Remy-Jardin, M., McCollough, C. H., & Yu, L. (2024). Radiology, 310(3). <http://pubs.rsna.org/doi/10.1148/radiol.231986>

NAEOTOM Alpha

High yield Clinical Applications for Photon Counting CT in Neurovascular Imaging.

Benson, J. C., Diehn, F. E., Nagelschneider, A. A., & Lehman, V. T. (2024) Br J Radiol May 7;97(1157):894-901. <https://doi.org/10.1093/bjr/tqae058>

2023

NAEOTOM Alpha

Photon-counting computed tomography - clinical application in oncological, cardiovascular, and pediatric radiology.

Hagen, F., Soschynski, M., Weis, M., Hagar, M. T., Krumm, P., Ayx, I., Taron, J., Krauss, T., Hein, M., Ruile, P., Von Zur Muehlen, C., Schlett, C. L., Neubauer, J., Tsiflikas, I., Russe, M. F., Arnold, P., Faby, S., Froelich, M. F., Weiß, J., Horger, M. (2023). RoFo Fortschritte Auf Dem Gebiet Der Röntgenstrahlen Und Der Bildgebenden Verfahren. <https://doi.org/10.1055/a-2119-5802>

NAEOTOM Alpha

Reduction of beam hardening artifact in photon-counting computed tomography: Using low-energy threshold polyenergetic reconstruction.

McGuire, A. M., Smith, C. D., Chamberlin, J. H., Maisuria, D., Tóth, A., Schoepf, U. J., O'Doherty, J., Munden, R. F., Burt, J., Baruah, D., & Kabakus, I. M. (2023).

Journal of Cardiovascular Computed Tomography, July, 3–4. <https://doi.org/10.1016/j.jcct.2023.08.007>

NAEOTOM Alpha

Photon counting computed tomography–applications.

Lofino, L., Marin, D. (2023).

Radiologic Clinics of North America. <https://doi.org/10.1016/j.rcl.2023.06.004>

NAEOTOM Alpha

Technical basics and clinical benefits of Photon-counting CT.

Flohr, T., Schmidt, B. (2023).

European Journal of Radiology 163 (2023) 110829 <https://doi.org/10.1097/RLI.0000000000000980>

NAEOTOM Alpha

Photon-counting CT : Review of initial clinical results.

Van der Bie, J., van Straten, M., Booi, R., Bos, D., Dijkshoorn, M. L., Hirsch, A., Sharma, S. P., Oei, E. H. G., & Budde, R. P. J. (2023).

European Journal of Radiology, 163 (April), 110829. <https://doi.org/10.1016/j.ejrad.2023.110829>

NAEOTOM Alpha

The technical development of photon-counting detector CT.

McCollough, C. H., Rajendran, K., Leng, S., Yu, L., Fletcher, J. G., Stierstorfer, K., & Flohr, T. G. (2023).

European Radiology. <https://doi.org/10.1007/s00330-023-09545-9>

NAEOTOM Alpha

Clinical applications of photon counting detector CT.

McCollough, C. H., Rajendran, K., Baffour, F. I., Diehn, F. E., Ferrero, A., Glazebrook, K. N., Horst, K. K., Johnson, T. F., Leng, S., Mileto, A., Rajiah, P. S., Schmidt, B., Yu, L., Flohr, T. G., & Fletcher, J. G. (2023).

European Radiology. <https://doi.org/10.1007/s00330-023-09596-y>

NAEOTOM Alpha

Seeing more with less: Clinical benefits of photon-counting detector CT.

Nehra, A. K., Rajendran, K., Baffour, F. I., Mileto, A., Rajiah, P. S., Horst, K. K., Inoue, A., Johnson, T. F., Diehn, F. E., Glazebrook, K. N., Thorne, J. E., Weber, N. M., Shanblatt, E. R., Gong, H., Yu, L., Leng, S., McCollough, C. H., & Fletcher, J. G. (2023).

Radiographics : A Review Publication of the Radiological Society of North America, Inc, 43(5), e220158.

<https://doi.org/10.1148/rq.220158>

NAEOTOM Alpha

Photon-counting computed tomography – Basic principles, potenzial benefits, and initial clinical experience.

Stein, T., Rau, A., Russe, M. F., Arnold, P., Faby, S., Ulzheimer, S., Weis, M., Froelich, M. F., Overhoff, D., Horger, M., Hagen, F., Bongers, M., Nikolaou, K., Schönberg, S. O., Bamberg, F., Weiß, J., & Stein, T. (2023).

RöFo <https://doi.org/10.1055/a-2018-3396>

NAEOTOM Alpha

Photon-counting detector CT : Early clinical experience review.

Sartoretti, T., Wildberger, J. Flohr, T., Alkadhi, H. (2023)

British Journal of Radiology <https://doi.org/10.1259/bjr.20220544>

NAEOTOM Alpha

Standardization and quantitative imaging with Photon-counting detector CT.

McCollough C., Rajendran, K., Leng, S. (2023). 00(00).

Investigative Radiology. <https://doi.org/10.1097/RLI.0000000000000948>

2022

NAEOTOM Alpha

First clinical Photon-counting detector CT system: Technical evaluation.

Rajendran, K., Petersilka, M., Henning, A., Shanblatt, E.R., Schmidt, B., Flohr, T. G., Ferrero, A., Baffour, F., Diehn, F. E., Yu, L., Rajiah, P., Fletcher, J. G., Leng, S., McCollough, C. H. (2022).

Radiology, 303(1), 130-138. <https://doi.org/10.1148/radiol.212579>

2. Cardiovascular imaging

2025

NAEOTOM Alpha

Accuracy of Photon-counting Detector CT Angiography for the Diagnosis of Obstructive Coronary Artery Disease: A Bayesian Diagnostic Test Accuracy Meta-Analysis

Heuts, S., Kawczynski, M.J., Lemmens, M.J., Vernooij, K., Bidar, E., Flohr, T., Wildberger, J.E., Smulders, M.W., and Muhl, C. Radiology: Cardiothoracic Imaging (2025) <https://doi.org/10.1148/ryct.250313>

NAEOTOM Alpha

Histology-Validated Comparison of Ultra-High-Resolution Photon-Counting Detector CT and Energy-Integrating Detector CT for Coronary Plaque Assessment

Sun, Y., Xu, C., Huang, J., Zhao, X., Yu, X., Lyu, M., Li, L., Chen, Z., Wang, N., Leidecker, C., Vliegenthart, R., Tu, S., and Wang, Y. JACC Cardiovascular Imaging. 118–125 (2026) <https://doi.org/10.1016/j.jcmq.2025.09.015>

NAEOTOM Alpha

Characterization of In-Stent Restenosis Using Photon-Counting Detector Computed Tomography

Shin, D., Volleberg, R.H.J.A., Parikh, R., Koo, C.C.Y., Sosa, F., Shlofmitz, E., Shlofmitz, R.A., Jeremias, A., Khalique, O.K., and Ali, Z.A. JACC Cardiovascular Imaging. 1265–1269 (2025) <https://doi.org/10.1016/j.jcmq.2025.07.023>

NAEOTOM Alpha

Stress Myocardial Perfusion Imaging With Photon-Counting CT: Initial Validation Against Reference Modalities

Longère, B., Caseneuve, H., Gkizas, C.V., Rodriguez Musso, A., Tregubova, M., Croisille, C., Haidar, M., and Pontana, F. Diagnostic and Interventional Imaging. (2025) <https://doi.org/10.1016/j.diii.2025.10.005>

NAEOTOM Alpha

Photon-Counting Detector Computed Tomography for Evaluation of Coronary Artery Disease in Older Adults

Parikh, R., Shin, D., Sakai, K., Singh, M., Caron, E., Cannata, M., Ciftcikal, Y., Weber, J., Volleberg, R.H.J.A., Pipitone, K., Cao, J.J., Chen, L., Sosa, F., Patel, K.K., Duggan, M., Khan, J.M., Cohen, D.J., Moses, J.W., Shlofmitz, R.A., Collet, C., Shlofmitz, E., Jeremias, A., Ali, Z.A., and Khalique, O.K. Journal of Cardiovascular Computed Tomography. 658–664 (2025) <https://doi.org/10.1016/j.jcct.2025.10.005>

NAEOTOM Alpha

Photon-Counting Computed Tomography in Cardiac Imaging

Shiyovich, A., Singh, A., Blair, C.V., Cardoso, R., Huck, D., Peng, G., Shaw, L.J., Leipsic, J.A., Gräni, C., Antoniadou, C., Maurovich-Horvat, P., Williamson, E.E., Cademartiri, F., Achenbach, S., and Blankstein, R. JACC Cardiovascular Imaging. 94–117 (2026) <https://doi.org/10.1016/j.jcmq.2025.07.022>

NAEOTOM Alpha

Evaluating Acute Ischemic Myocardial Injury With Photon-Counting Computed Tomography

Kotronias, R.A., Portolan, L., Xie, C., Ferreira, V.M., Raman, B., Klotz, E., De Maria, G.L., Blankstein, R., Channon, K.M., Neubauer, S., and Antoniadou, C. JACC Cardiovascular Imaging. (2025) <https://doi.org/10.1016/j.jcmq.2025.08.016>

NAEOTOM Alpha

Clinical Photon-Counting Computed Tomography in Living Patients Detects Intra-Plaque Haemorrhage and Thrombus in Carotid Plaques

Shami, A., Sun, J., Celander, M., Persson, A., Edsfieldt, A., Bech, M., Aurumskjöld, M.L., and Gonçalves, I. European Heart Journal. 5045–5048 (2025) <https://doi.org/10.1093/eurheartj/ehaf707>

NAEOTOM Alpha

Photon-Counting CT Enhances Diagnostic Accuracy in Stable Coronary Artery Disease: A Comparative Study With Conventional CT

Nakashima, M., Miyoshi, T., Hara, S., Miyagi, R., Nishihara, T., Miki, T., Osawa, K., and Yuasa, S. Journal of Clinical Medicine. 6049 (2025) <https://doi.org/10.3390/jcm14176049>

NAEOTOM Alpha

Diagnostic Accuracy of Ultra-High-Resolution Photon-Counting Detector Computed Tomography for Detecting Coronary In-Stent Restenosis

Sharma, S.P., van der Bie, J., Ziedses des Plantes, A.C., Coenen, A., Dijkshoorn, M.L., Bos, D., Daemen, J., van Mieghem, N.M., Hirsch, A., and Budde, R.P.J. JACC Cardiovascular Imaging. 1405–1407 (2025) <https://doi.org/10.1016/j.jcmq.2025.07.009>

NAEOTOM Alpha**Spectral Imaging Techniques in Heart Disease Assessment Using Photon-Counting Detector Computed Tomography**

Beke, S., Zsarnóczy, E., Száraz, L., Vattay, B., Kravchenko, D., Vecsey-Nagy, M., Tremamunno, G., Emrich, T., Varga-Szemes, A., Szilveszter, B., and Maurovich-Horvat, P.
Echocardiography. e70177 (2025) <https://doi.org/10.1111/echo.70177>

NAEOTOM Alpha**Validation of Coronary Stent Measurements Using Photon-Counting Detector Computed Tomography: A Comparison With Optical Coherence Tomography**

Malik, S., Shin, D., Caron, E., Volleberg, R.H.J.A., Sakai, K., Collet, C., Shlofmitz, E., Jeremias, A., Ali, Z.A., and Khaliq, O.K.
JACC Cardiovascular Imaging. 126–129 (2026) <https://doi.org/10.1016/j.jcmq.2025.07.003>

NAEOTOM Alpha**Doughnut Sign: A Mixed Plaque Phenotype Unraveled Only by the Photon Counting CCTA**

Pruthvi C. Revaiah, MD, Patrick W. Serruys, MD, Sean O. Hynes, MD, PhD, Christos V. Bourantas, MD, PhD, Helle Precht, PhD, Yoshinobu Onuma, MD, PhD, Erica Maffei, MD, and Filippo Cademartiri, MD, PhD.
J Circulation: Cardiovascular Imaging. e017925 (2025) <https://doi.org/10.1161/CIRCIMAGING.124.017925>

RECOMMENDED

NAEOTOM Alpha**Accuracy of photon-counting detector CT-based iodine maps for myocardial late enhancement detection.**

Tremamunno, G., Varga-Szemes, A., Kravchenko, D. et al.
Eur Radiol (2025). <https://doi.org/10.1007/s00330-025-11622-0>

RECOMMENDED

NAEOTOM Alpha**Aging of the tricuspid valve annulus detected by photon-counting detector computed tomography: Importance of aortic root compression on occurrence of arrhythmias**

Morita, Hiroshi et al.
Heart Rhythm, Volume 0, Issue 0. <https://doi.org/10.1016/j.hrthm.2025.03.2002>

NAEOTOM Alpha**Cost-effectiveness of photon counting detector CT for coronary artery disease diagnostics: A Finnish healthcare perspective**

Brix, Mikael A.K. et al.
European Journal of Radiology (2025), Volume 190, 112245 : <https://doi.org/10.1016/j.ejrad.2025.112245>

RECOMMENDED

NAEOTOM Alpha**Assessing beam hardening artifacts in coronary stent imaging using different CT acquisition parameters on photon-counting detector computed tomography**

Adolf, R., Ried, I., Will, A. et al.
Int J Cardiovasc Imaging (2025). <https://doi.org/10.1007/s10554-025-03392-z>

NAEOTOM Alpha**Coronary Plaque Quantification with Ultrahigh-Spatial-Resolution Photon-counting Detector CT: Intraindividual Comparison with Energy-integrating Detector CT**

Milán Vecsey-Nagy, Giuseppe Tremamunno, U. Joseph Schoepf, Chiara Gnasso, Emese Zsarnóczy, Nicola Fink, Dmitriy Kravchenko, Moritz C. Halfmann, Jim O'Doherty, Bálint Szilveszter, Pál Maurovich-Horvat, Ismail Mikdat Kabakus, Pal Spruill Suranyi, Tilman Emrich, and Akos Varga-Szemes
Radiology 2025 314:3/ <https://doi.org/10.1148/radiol.241479>

RECOMMENDED

NAEOTOM Alpha**Effect of Reconstruction Kernel and Virtual Monoenergetic Imaging on Segmentation-Based Measurement of Coronary Plaque Volume With Photon-Counting CT**

Skoog, Susann MD; Good, Elin MD, PhD; Henriksson, Lilian MSc, PhD; Sandstedt, Mårten MD, PhD; Persson, Anders MD; Tesselaar, Erik PhD.
Investigative Radiology ():10.1097/RLI.0000000000001167, February 25, 2025. <https://doi.org/10.1097/RLI.0000000000001167>

NAEOTOM Alpha**Evaluation of low-dose chest scans for coronary artery calcium scoring using photon-counting computed tomography with different slice thicknesses and iterative reconstruction levels**

Zhao YE, Hu Q, Zhu J, Zhang H, Chen J, Sun M, Jin D, Lu G, Luo S.
Quant Imaging Med Surg. 2025 Apr 1;15(4):3565-3574. <https://doi.org/10.21037/qims-24-1244>

NAEOTOM Alpha**Benchmarking Photon-Counting Computed Tomography Angiography Against Invasive Assessment of Coronary Stenosis: Implications for Severely Calcified Coronaries.**

Kotronias, R, de Maria, G, Xie, C. et al.
J Am Coll Cardiol Img. 2025 May, 18 (5) 572–585. <https://doi.org/10.1016/j.jcmq.2024.11.005>

RECOMMENDED

NAEOTOM Alpha**Feasibility of on-site CT-FFR analysis on cardiac photon-counting CT in evaluation of hemodynamically significant stenosis in comparison to invasive catheter angiography**

RECOMMENDED

Ayx, Isabelle et al.

European Journal of Radiology, Volume 183, 111927 <https://doi.org/10.1016/j.ejrad.2025.111927>**NAEOTOM Alpha****Influence of virtual monoenergetic reconstructions on coronary CT angiography-based fractional flow reserve with photon-counting detector CT: intra-individual comparison with energy-integrating detector CT.**

Tremamunno, G., Pinos, D., Zsarnoczay, E. et al.

Insights Imaging 16, 36 (2025). <https://doi.org/10.1186/s13244-025-01927-5>**NAEOTOM Alpha****Improving image quality and diagnostic usability in photon-counting coronary CT angiography using a novel reconstruction algorithm.**

RECOMMENDED

Haag, N.P., Niehoff, J.H., Shahzadi, I. et al.

Eur Radiol (2025). <https://doi.org/10.1007/s00330-025-11429-z>**NAEOTOM Alpha****Intra-individual radiomic analysis of pericoronary adipose tissue: Photon-counting detector vs energy-integrating detector CT angiography**

Kravchenko, Dmitrij et al.

International Journal of Cardiology, Volume 420, 132749 (2025). <https://doi.org/10.1016/j.ijcard.2024.132749>**NAEOTOM Alpha****Myocardial Late Enhancement With Photon-Counting Detector CT in Spontaneous Coronary Artery Dissection: Prospective Comparison With Cardiac MRI**

Klambauer, Konstantin MD; Klotz, Ernst PhD; Moser, Lukas J. MD; Kälin, Tobias; Biondo, Andrea MD; Schweiger, Victor MD; Mergen, Victor MD; Lisi, Costanza MD; Würdinger, Michael MD; Schlenker, Rabea MD; Di Vece, Davide MD; Gotschy, Alexander MD; Reiner, Martin MD; Ghadri, Jelena-R. MD; Wilzeck, Verena C. MD; Eberhard, Matthias MD; Templin, Christian MD, PhD; Manka, Robert MD; Alkadhi, Hatem MD, MPH, EBCR, FESER.

Investigative Radiology (:10.1097/RLI.0000000000001203, April 25, 2025. <https://doi.org/10.1097/RLI.0000000000001203>**NAEOTOM Alpha****Evaluation of Extracellular Volume and Coronary Artery Disease in Cardiac Amyloidosis Using Photon-Counting CT.**

RECOMMENDED

Popp, Sabine MD; Beitzke, Daniela BSc, MSc; Strassl, Andreas BSc, MSc; Kronberger, Christina MD, PhD; Kammerlander, Andreas MD, PhD; Duca, Franz MD, PhD; Loewe, Christian MD; Hoffner, Maximilian MD; Heidinger, Benedikt H. MD, PhD; Beitzke, Dietrich MD.

Investigative Radiology (:10.1097/RLI.0000000000001198, April 25, 2025. <https://doi.org/10.1097/RLI.0000000000001198>**NAEOTOM Alpha****Photon-Counting Chest CT at Radiography-Comparable Dose Levels: Impact on Opportunistic Visual and Semiautomated Coronary Calcium Quantification**

Kroschke, Jonas MD; Kerber, Bjarne MD; Eberhard, Matthias MD, PD; Ensle, Falko MD; Frauenfelder, Thomas MD; Jungblut, Lisa MD.

Investigative Radiology (:10.1097/RLI.0000000000001199, April 25, 2025. <https://doi.org/10.1097/RLI.0000000000001199>**NAEOTOM Alpha****Quantification of abdominal aortic calcification using photon-counting CT angiography: an imaging biomarker for high-risk cardiovascular patients**

Ota, T., Nakamoto, A., Hori, M. et al.

Radiol med (2025). <https://doi.org/10.1007/s11547-025-01978-0>**NAEOTOM Alpha****Relationship Between Myocardial Strain and Extracellular Volume: Exploratory Study in Patients with Severe Aortic Stenosis Undergoing Photon-Counting Detector CT**

Lisi, C.; Mergen, V.; Moser, L.J.; Klambauer, K.; Michel, J.; Kasel, A.M.; Alkadhi, H.; Eberhard, M.

Diagnostics 2025, 15, 224. <https://doi.org/10.3390/diagnostics15020224>**NAEOTOM Alpha****Diagnostic Performance and Clinical Impact of Photon-Counting Detector Computed Tomography in Coronary Artery Disease.**

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Sakai, K, Shin, D, Singh, M. et al.

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Tremamunno, G., Vecsey-Nagy, M., Hagar, M. T., Schoepf, U. J., O'Doherty, J., Luetkens, J. A., Kuetting, D., Isaak, A., Varga-Szemes, A., Emrich, T., & Kravchenko, D. (2024). Academic Radiology, 1–11. <https://doi.org/10.1016/j.acra.2024.11.055>

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Intra-individual radiomic analysis of pericoronary adipose tissue: Photon-counting detector vs energy-integrating detector CT angiography.

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Combined influence of quantum iterative reconstruction level and kernel sharpness on image quality in photon counting CT angiography of the upper leg.

Krompaß, K., Goldbrunner, F. A., Hartung, V., Ergün, S., Peter, D., Hendel, R., Huflage, H., Patzer, T. S., Hennes, J. L., Bley, T. A., Grunz, J. P., & Gruschwitz, P. (2024). Scientific Reports, 14(1), 1–9. <https://doi.org/10.1038/s41598-024-79188-3>

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Diagnostic Performance and Clinical Impact of Photon-Counting Detector Computed Tomography in Coronary Artery Disease.

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Coronary CT angiography-based FFR with ultra high-resolution photon-counting detector CT: Intra-individual comparison to energy-integrating detector CT.

Vecsey-Nagy, M., Tremamunno, G., Schoepf, U. J., Gnasso, C., Zsarnóczy, E., Fink, N., Kravchenko, D., Taha Hagar, M., Halfmann, M. C., Jokkel, Z., O'Doherty, J., Szilveszter, B., Maurovich-Horvat, P., Spruill Suranyi, P., Varga-Szemes, A., & Emrich, T. (2024).

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The pericoronary adipose tissue attenuation in CT strongly depends on kernels and iterative reconstructions.

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Intraindividual reproducibility of myocardial radiomic features between energy-integrating detector and photon-counting detector CT angiography.

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Accuracy of ultra-high resolution and virtual non-calcium reconstruction algorithm for stenosis evaluation with photon-counting CT : results from a dynamic phantom study.

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Improved Detection of Small and Low-Density Plaques in Virtual Noncontrast Imaging–based Calcium Scoring at Photon-Counting Detector CT.

Fink, N., Emrich, T., Schoepf, U. J., Zsarnoczay, E., O'Doherty, J., Halfmann, M. C., Griffith, J. P., Pinos, D., Suranyi, P., Baruah, D., Kabakus, I. M., Ricke, J., & Varga-Szemes, A. (2024).

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Yang, Y., Richter, R., Halfmann, M. C., Graafen, D., Hell, M., Vecsey-Nagy, M., Laux, G., Kavermann, L., Jorg, T., Geyer, M., Varga-Szemes, A., & Emrich, T. (2024).

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Halfmann, M. C., Bockius, S., Emrich, T., Hell, M., Schoepf, U. J., Laux, G. S., Kavermann, L., Graafen, D., Gori, T., Yang, Y., Klöckner, R., Maurovich-Horvat, P., Ricke, J., Müller, L., Varga-Szemes, A., & Fink, N. (2024). Radiology, 310(2). <https://doi.org/10.1148/radiol.231956>

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A Novel Reconstruction Technique to Reduce Stair-Step Artifacts in Sequential Mode Coronary CT Angiography.

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Kotronias R., Raman, B., Ferreira, V., Neubauer, S., Antoniadou, C. (2024) European Heart Journal March, 1–18. <https://doi.org/10.1093/ehjci/jeae003>

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Zsarnoczay, E., Sanchez, D.P., Schoepf, U.J., O'Doherty, J., Gnasso, C., Griffith III, J., Vecsey-Nagy, M., Suranyi, P., Maurovich-Horvat, P., Emrich, T., Varga-Szemes, A., (2023) International Journal of Cardiology, <https://doi.org/10.1016/j.ijcard.2023.131684>

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McCollough, C. H., Rajiah, P., Bois, J. P., Winfree, T. N., Carter, R. E., Rajendran, K., Williamson, E. E., Thorne, J. E., & Leng, S. (2023).

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Photon-counting detector CT reduces the rate of referrals to invasive coronary angiography as compared to CT with whole heart coverage energy-integrating detector.

Simon, J., Hrenkó, Á., Kerkovits, N. M., Nagy, K., Vértés, M., Balogh, H., Nagy, N., Munkácsi, T., Emrich, T., Varga-Szemes, A., Boussoussou, M., Vattay, B., Vecsey-Nagy, M., Kolossváry, M., Szilveszter, B., Merkely, B., & Maurovich-Horvat, P. (2023).

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An Intra-Individual Comparison of Low-keV Photon-counting CT versus Energy-Integrating-Detector CT Angiography of the Aorta.

Hennes, J., Huflage, H., Grunz, J., Hartung, V., Augustin, A. M., Patzer, T. S., Pannenbecker, P., Petritsch, B., & Bley, T. A. (2023).

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Intrapopliteal Segments on Lower-Extremity CTA: Prospective Intraindividual Comparison of Energy-Integrating Detector CT and Photon-counting Detector CT.

Yalon, M., Inoue, A., Thorne, J. E., Lee, Y. S., Johnson, M. P., Esquivel, A., Leng, S., McCollough, C. H., Fletcher, J. G., & Rajiah, P. S. (2023).

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Image Characteristics of Virtual Non-Contrast Series Derived from Photon-counting Detector Coronary CT Angiography—Prerequisites for and Feasibility of Calcium Quantification.

Braun, F. M., Risch, F., Decker, J. A., Woźnicki, P., Bette, S., Becker, J., Rippel, K., Scheurig-Münkler, C., Kröncke, T. J., & Schwarz, F. (2023).

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Coronary artery stenosis quantification in patients with dense calcifications using ultra-high-resolution Photon-counting-detector computed tomography.

Koons, E. K., Rajiah, P. S., Thorne, J. E., Weber, N. M., Kasten, H. J., Shanblatt, E. R., McCollough, C. H., & Leng, S. (2023).

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Coronary calcium scoring on virtual non-contrast and virtual non-iodine reconstructions compared to true non-contrast images using Photon-counting computed tomography.

Sharma, S. P., van der Bie, J., van Straten, M., Hirsch, A., Bos, D., Dijkshoorn, M. L., Booij, R., & Budde, R. P. J. (2023).

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Coronary Stenosis Quantification With Ultra-High-Resolution Photon-counting Detector CT Angiography.

Eberhard, M., Candreva, A., Rajagopal, R., Mergen, V., Sartoretti, T., Stähli, B. E., Templin, C., Manka, R., & Alkadhi, H. (2023).

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Photon-counting detector CT-based virtual monoenergetic reconstructions: repeatability and reproducibility of radiomics features of an organic phantom and human myocardium.

Wolf, E. V., Müller, L., Schoepf, U. J., Fink, N., Griffith, J. P., Zsarnoczay, E., Baruah, D., Suranyi, P., Kabakus, I. M., Halfmann, M. C., Emrich, T., Varga-Szemes, A., & O'Doherty, J. (2023).

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Pericoronary Radiomics texture features associated with hypercholesterolemia on a Photon-counting-CT.

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Comparison of ultrahigh and standard resolution Photon-counting CT angiography of the femoral arteries in a continuously perfused in vitro model.

Gruschwitz, P., Hartung, V., Ergün, S., Peter, D., Lichthardt, S., Huflage, H., Hendel, R., Pannenbecker, P., Augustin, A. M., Kunz, A. S., Feldle, P., Bley, T. A., & Grunz, J. P. (2023).

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Photon-counting Detector CT for Femoral Stent Imaging in an Extracorporeally Perfused Human Cadaveric Model.

Hartung, V., Gruschwitz, P., Huflage, H., Augustin, A. M., Kleefeldt, F., Peter, D., Lichthardt, S., Ergün, S., Bley, T. A., Grunz, J.-P., & Petritsch, B. (2023).

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Photon-counting Detector Computed Tomography Versus Energy-Integrating Detector Computed Tomography for Coronary Artery Calcium Quantitation.

McCollough, C. H., Winfree, T. N., Melka, E. F., Rajendran, K., Carter, R. E., & Leng, S. (2023).

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A prospective study comparing the quality of coronary computed tomography angiography images from photon counting and energy integrating detector systems.

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Cardiovascular applications of photon-counting CT technology: A revolutionary new diagnostic step.

Meloni, A., Cademartiri, F., Positano, V., Celi, S., Berti, S., Clemente, A., La Grutta, L., Saba, L., Bossone, E., Cavaliere, C., Punzo, B., & Maffei, E. (2023).

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Saving contrast media in coronary CT angiography with photon-counting detector CT.

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Academic Radiology, 6, 1–9. <https://doi.org/10.1016/j.acra.2023.06.025>

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Coronary stent imaging in photon counting computed Tomography: Optimization of reconstruction kernels in a phantom.

Elias Michael, A., Schoenbeck, D., Becker-Assmann, J., Henning Niehoff, J., Flohr, T., Schmidt, B., Panknin, C., Baer-Beck, M., Hickethier, T., Maintz, D., Christian Bunck, A., Borggreffe, J., Wiemer, M., Rudolph, V., & Robert Kroeger, J. (2023).

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Intra-individual comparison of image quality of the coronary arteries between Photon-counting detector and energy-integrating detector CT systems.

Pinos, D., Griffith, J., Emrich, T., Schoepf, U. J., O'Doherty, J., Zsarnoczay, E., Fink, N., Vecsey-Nagy, M., Suranyi, P., Tesche, C., Aquino, G. J., Varga-Szemes, A., & Brandt, V. (2023).

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Impact of virtual monoenergetic levels on coronary plaque volume components using Photon-counting computed tomography.

Vattay, B., Szilveszter, B., Boussoussou, M., Vecsey-Nagy, M., Lin, A., Konkoly, G., Kubovje, A., Schwarz, F., Merkely, B., Maurovich-Horvat, P., Williams, M. C., Dey, D., & Kolossváry, M. (2023).

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Intra-individual comparison of coronary artery stenosis measurements between energy-integrating detector CT and Photon-counting detector CT Coronary artery stenosis measurements.

Wolf, E. V., Gnasso, C., Schoepf, U. J., Halfmann, M. C., O'Doherty, J., Zsarnoczay, E., Varga-Szemes, A., Emrich, T., & Fink, N. (2023).

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Ex vivo coronary calcium volume quantification using a high-spatial-resolution clinical photon-counting-detector computed tomography.

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Photon-counting Detector CT Angiography for Endoleak Detection After Endovascular Aortic Repair.

Turrion Gomollon, A. M., Mergen, V., Sartoretti, T., Polacin, M., Nakhostin, D., Puipe, G., Alkadhi, H., & Euler, A. (2023). Investigative Radiology, Publish Ah(00), 1–6. <https://doi.org/10.1097/rli.0000000000000993>

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Cardiac virtual noncontrast images for calcium quantification with Photon-counting detector CT.

Mergen, V., Ghouse, S., Sartoretti, B. T., Manka, B. R., & Euler, A. (2023). Radiology: Cardiothoracic Imaging 2023; 5(3):e220307 <https://doi.org/10.1148/ryct.220307>

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Accuracy of ultrahigh-Resolution Photon-counting CT for Detecting Coronary Artery Disease in a high-risk population

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The Importance of Temporal Resolution for Ultra-High-Resolution Coronary Angiography Evidence From Photon-counting Detector CT.

Mergen, V., Sartoretti, T., Cundari, G., Serifovic, M., Higashigaito, K., Allmendinger, T., Schmidt, B., Flohr, T., Manka, R., Eberhard, M., & Alkadhi, H. (2023). Investigative Radiology 1–8. <https://doi.org/10.1097/RLI.0000000000000987>

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Dual-Source Photon-counting Computed Tomography — Part III : Clinical Overview of Vascular Applications beyond Cardiac and Neuro Imaging.

Meloni, A., Cademartiri, F., Pistoia, L., Degiorgi, G., Clemente, A., Gori, C. De, Positano, V., Celi, S., Berti, S., Emdin, M., Panetta, D., Menichetti, L., Punzo, B., Cavaliere, C., Bossone, E., Saba, L., Cau, R., Grutta, L. La, & Maffei, E. (2023). Journal of Clinical Medicine. 12, 3798. <https://doi.org/10.3390/jcm12113798>

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Dual-Source Photon-counting Computed Tomography — Part I : Clinical Overview of Cardiac CT and Coronary CT Angiography Applications.

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Photon-counting Detector CT in Patients Pre- and Post- Transcatheter Aortic Valve Replacement.

Bie, J. Van Der, Hirsch, A., & Mieghem, N. M. D. A. Van. (2023) Radiology: Cardiovascular Imaging 5(2):e220318 <https://doi.org/10.1148/ryct.220318>

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Spectral aortoiliac Photon-counting CT angiography with minimal quantity of contrast agent.

Rau, S., Soschynski, M., Schlett, C. L., Hagar, M. T. (2023). Radiology Case Reports, 18(6), 2180–2182. <https://doi.org/10.1016/j.radcr.2023.01.066>

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Photon-counting Versus Energy-Integrating Detector CT Angiography of the Lower Extremity in a Human Cadaveric Model With Continuous Extracorporeal Perfusion.

Gruschwitz, P., Hartung, V., Kleefeldt, F., Ergün, S., Huflage, H., Peter, D., Hendel, R., Patzer, T. S., Pannenbecker, P., Kuhl, P. J., Bley, T. A., Petritsch, B., Grunz, J. (2023). Investigative Radiology 1–6. <https://doi.org/10.1097/RLI.0000000000000982>

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Radiation Dose Reduction for Coronary Artery Calcium Scoring Using a Virtual Non-Iodine Algorithm on Photon Counting Detector Computed Tomography Phantom Data.

Fink, N., Zsarnoczay, E., Schoepf, U. J., Doherty, J. O., Ili, J. P. G., Pinos, D., Tesche, C., Ricke, J., Willeminck, M., Varga-szemes, A., & Emrich, T. (2023). Diagnostics Apr 25;13(9):1540. <https://doi.org/10.3390/diagnostics13091540>

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Quantifying lumen diameter in coronary artery stents with high-resolution photon counting detector CT and convolutional neural network denoising.

Koons, E. K., Rajendran, K., Thorne, J. E., Huber, N. R., Mccollough, C. H., Leng, S., & Chang, S. (2023) Medical Physics Research Article <https://doi.org/10.1002/mp.16415>

NAEOTOM Alpha

First in-vivo coronary stent imaging with clinical ultra high resolution Photon-counting CT

Geering, L., Sartoretti, T., Mergen, V., Cundari, G., Rusek, S., Civaia, F., Rossi, P., Templin, C., Manka, R., Eberhard M., Alkadhi, H. Journal of Cardiovascular Computed Tomography, 5(1), 1–2. <https://doi.org/10.1016/j.jcct.2023.02.009>

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Photon Counting Detector CT-Based Virtual Noniodine Reconstruction Algorithm for In Vitro and In Vivo Coronary Artery Calcium Scoring: Impact of Virtual Monoenergetic and Quantum Iterative Reconstructions.

Fink, N., Zsarnoczay, E., Schoepf, U. J., Griffith, J. P., Wolf, E. V., O'Doherty, J., Suranyi, P., Baruah, D., Kabakus, I. M., Ricke, J., Varga-Szemes, A., Emrich, T. (2023).

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High-Pitch Multienergy Coronary CT Angiography in Dual-Source Photon-counting Detector CT Scanner at Low Iodinated Contrast Dose.

Rajiah, P. S., Dunning, C. A. S., Rajendran, K., Tandon, Y. K., Ahmed, Z., Larson, N. B., Collins, J. D., Thorne, J., Williamson, E., Fletcher, J. G., Mccollough, C. (2023).

Investigative Radiology, 58(9):p 681-690 <https://doi.org/10.1097/RLI.0000000000000961>

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Characterizing the Heart and the Myocardium With Photon-counting CT.

Zsarnóczay, E., Varga-Szemes, A., Emrich, T., Szilveszter, B., van der Werf, N. R., Mastrodicasa, D., Maurovich-Horvat, P., Willemink, M. J. (2023).

Investigative Radiology, 58(7):p 505-514 <https://doi.org/10.1097/RLI.0000000000000956>

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Ultra-high resolution Photon-counting coronary CT angiography improves coronary stenosis quantification over a wide range of heart rates – A dynamic phantom study.

Zsarnoczay, E., Fink, N., Schoepf, U. J., O'Doherty, J., Allmendinger, T., Hagenauer, J., Wolf, E. V., Griffith, J. P., Maurovich-Horvat, P., Varga-Szemes, A., Emrich, T. (2023).

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Radiation dose optimization for photon - counting CT coronary artery calcium scoring for different patient sizes : a dynamic phantom study.

Dobrolinska, M. M., Werf, N. R. Van Der, Bie, J. Van Der, Groen, J. De, Dijkshoorn, M. (2023).

European Radiology, 33, 4668–4675 (2023). <https://doi.org/10.1007/s00330-023-09434-1>

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Photon-counting Computed Tomography (PCCT): Technical Background and Cardio-Vascular Applications.

Meloni, A., Frijia, F., Panetta, D., Degiorgi, G., De Gori, C., Maffei, E., Clemente, A., Positano, V., Cademartiri, F. (2023).

Diagnostics, 13(4). <https://doi.org/10.3390/diagnostics13040645>

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Influence of heart rate and heart rate variability on the feasibility of ultra-fast, high-pitch coronary Photon-counting computed tomography angiography.

Rotkopf, L. T., Froelich, M. F., Riffel, P., Ziener, C. H., Reid, C., Schlemmer, H. P., Schoenberg, S. O., Ayx, I. (2023).

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Myocardial characterization with extracellular volume mapping with a first-generation Photon-counting detector CT with MRI reference.

Aquino, G. J., O'Doherty, J., Schoepf, U. J., Ellison, B., Byrne, J., Fink, N., Zsarnoczay, E., Wolf, E. V., Allmendinger, T., Schmidt, B., Flohr, T., Baruah, D., Suranyi, P., Varga-Szemes, A., & Emrich, T. (2023).

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Intra-individual comparison of coronary calcium scoring between photon counting detector- and energy integrating detector-CT : Effects on risk reclassification.

Wolf, E. V., Halfmann, M. C., Schoepf, U. J., Zsarnoczay, E., Fink, N., Ili, J. P. G., Aquino, G. J., Willemink, M. J., Doherty, J. O., Hell, M. M., Suranyi, P., & Kabakus, I. M. (2023).

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Photon- counting detector coronary CT angiography : impact of virtual monoenergetic imaging and iterative reconstruction on image quality.

Sartoretti, T., McDermott, M. , Mergen, V., Euler, A., Schmidt, B., Jost, G., Wildberger, J.E., Alkadhi, A. (2022)

British Institute of Radiology. April 2022. <https://doi.org/10.1259/bjr.20220466>

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Influence of local aortic calcification on periaortic adipose tissue radiomics texture features—a primary analysis on PCCT.

Tharmaseelan, H., Froelich, M. F., Nörenberg, D., Overhoff, D., Rotkopf, L. T., Riffel, P., Schoenberg, S. O., Ayx, I. (2022). International Journal of Cardiovascular Imaging, 38(11), 2459–2467. <https://doi.org/10.1007/s10554-022-02656-2>

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Assessment of epicardial adipose tissue on virtual non-contrast images derived from Photon-counting detector coronary CTA datasets.

Risch, F., Schwarz, F., Braun, F., Bette, S., Becker, J., Scheurig-Muenkler, C., Kroencke, T. J., & Decker, J. A. (2022). European Radiology. <https://doi.org/10.1007/s00330-022-09257-6>

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Wildberger, J. E., & Alkadhi, H. (2023). Investigative Radiology, 1–6. <https://doi.org/10.1097/RLI.0000000000000957>

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Stent imaging on a clinical dual-source Photon-counting detector CT system—impact of luminal attenuation and sharp kernels on lumen visibility.

Decker, J. A., O'Doherty, J., Schoepf, U. J., Todoran, T. M., Aquino, G. J., Brandt, V., Baruah, D., Fink, N., Zsarnoczay, E., Flohr, T., Schmidt, B., Allmendinger, T., Risch, F., Varga-Szemes, A., Emrich, T. (2022). European Radiology. <https://doi.org/10.1007/s00330-022-09283-4>

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High-pitch, high temporal resolution, multi-energy cardiac imaging on a dual-source Photon-counting-detector CT.

Ahmed, Z., Campeau, D., Gong, H., Rajendran, K., Rajiah, P., McCollough, C., & Leng, S. (2022). Medical Physics. <https://doi.org/10.1002/mp.16124>

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Reduced Iodinated Contrast Media Administration in Coronary CT Angiography on a Clinical Photon-counting Detector CT System.

Emrich, T., O'Doherty, J., Schoepf, U. J., Suranyi, P., Aquino, G., Kloechnker, R., Halfmann, M. C., Allmendinger, T., Schmidt, B., Flohr, T., Varga-Szemes, A. (2022). Investigative Radiology 58(2). <https://doi.org/10.1097/RLI.0000000000000911>

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High Temporal Resolution Dual-Source Photon-counting CT for Coronary Artery Disease: Initial Multicenter Clinical Experience.

Soschynski, M., Hagen, F., Baumann, S., Hagar, M. T., Weiss, J., Krauss, T., Schlett, C. L., von zur Mühlen, C., Bamberg, F., Nikolaou, K., Greulich, S., Froelich, M. F., Riffel, P., Overhoff, D., Papavassiliu, T., Schoenberg, S. O., Faby, S., Ulzheimer, S., Ayx, I., Krumm, P. (2022). Journal of Clinical Medicine 11(20). <https://doi.org/10.3390/jcm11206003>

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Plaque composition on ultra-high-resolution coronary computed tomography angiography with optical coherence tomography correlation.

Emrich, T., Hell, M. (2022). European Heart Journal. <https://doi.org/10.1093/eurheartj/ehac560>

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Coronary Artery Calcium Evaluation Using New Generation Photon-counting Computed Tomography Yields Lower Radiation Dose Compared With Standard Computed Tomography.

Schwartz, F. R., Daubert, M. A., Molvin, L., Ramirez-Giraldo, J. C., Samei, E., Marin, D., Tailor, T. D. (2022). Journal of Thoracic Imaging, <https://doi.org/10.1097/RTI.0000000000000685>

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First in-human quantitative plaque characterization with ultra-high resolution coronary Photon-counting CT angiography.

Mergen, V., Eberhard, M., Manka, R., Euler A., Alkadhi H. (2022). Frontiers in Cardiovascular Medicine, 9. <https://doi.org/10.3389/fcvm.2022.981012>

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Ultra-High-Resolution Coronary CT Angiography With Photon-counting Detector CT.

Mergen, V., Sartoretto, T., Baer-Beck, M., Schmidt, B., Petersilka, M., Wildberger, J. E., Euler, A., Eberhard, M., Alkadhi, H. (2022). Investigative Radiology, Publish Ahead of Print (00), 8–12. <https://doi.org/10.1097/rli.0000000000000897>

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Comparison Study of Myocardial Radiomics Feature Properties on Energy-Integrating and Photon-counting Detector CT.

Ayx, I., Tharmaseelan, H., Hertel, A., Nörenberg, D., Overhoff, D., Rotkopf, L. T., Riffel, P., Schoenberg, S. O., Froelich, M. F. (2022). *Diagnostics*, 12(5), 1294. <https://doi.org/10.3390/diagnostics12051294>

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Improved assessment of coronaryartery luminal stenosis with heavycalcifications using high-resolutionPhoton-counting detector CT.

Koons, E., VanMeter, P., Rajendran, K., Yu, L., McCollough, C. H., Leng, S. (2022). *Physics of Medical Imaging, SPIE Event*. <https://doi.org/10.1117/12.2613019>

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Coronary CTA-based Calcium Scoring: In-Vitro and In-Vivo Validation of a Novel Virtual Non-Iodine Reconstruction Algorithm on a Clinical, First Generation Photon Counting-Detector System.

Emrich, T., Aquino, G., Schoepf, U. J., Braun, F. M., Woznicki, P., Decker, J. A., O'Doherty, J., Brandt, V., Allmendinger, T., Nowak, T., Schmidt, B., Flohr, T., Kroencke, T. J., Scheurig-Muenkler, C., Varga-Szemes, A., Schwarz, F. (2022). *Investigative Radiology*, 1–8. <https://doi.org/10.1097/RLI.0000000000000868>

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Coronary calcium scores on dual-source Photon-counting computed tomography: an adapted Agatston methodology aimed at radiation dose reduction.

van der Werf, N. R., Greuter, M. J. W., Booij, R., van der Lugt, A., Budde, R. P. J., van Straten, M. (2022). *European Radiology*. <https://doi.org/10.1007/s00330-022-08642-5>

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Dose Reduction in Coronary Artery Calcium Scoring Using Mono-Energetic Images from Reduced Tube Voltage Dual-Source Photon-counting CT Data: A Dynamic Phantom Study.

van der Werf, N. R., van Gent, M., Booij, R., Bos, D., van der Lugt, A., Budde, R. P. J., Greuter, M. J. W., van Straten, M. (2021). *Diagnostics*, 11(12), 2192. <https://doi.org/10.3390/diagnostics11122192>

NAEOTOM Alpha

Epicardial Adipose Tissue Attenuation and Fat Attenuation Index: Phantom Study and In-Vivo Measurements With Photon-counting CT.

Mergen, V., Ried, E., Allmendinger, T., Sartoretti, T., Higashigaito, K., Manka, R., Euler, A., Alkadhi, H., Eberhard, M. (2022). *American Journal of Roentgenology*, 218(5), 822-829. <https://doi.org/10.2214/AJR.21.26930>

NAEOTOM Alpha

Extracellular volume quantification with cardiac late enhancement scanning using dual-source Photon-counting detector CT.

Mergen, V., Sartoretti, T., Klotz, E., Schmidt, B., Jungblut, L., Higashigaito, K., Manka, R., Euler, A., Kasel, A., Eberhard, M., Alkadhi, H. (2021). *Investigative Radiology*, 57(6), 406-411. <https://doi.org/10.1097/RLI.0000000000000851>

NAEOTOM Alpha

Photon-counting Detector CT-Based Vascular Calcium Removal Algorithm: Assessment Using a Cardiac Motion Phantom.

Allmendinger, T., Nowak, T., Flohr, T., Klotz, E., Hagebauer, J., Alkadhi, H., Schmidt, B. (2022). *Investigative Radiology*, 57(6), 399-405. <https://doi.org/10.1097/RLI.0000000000000853>

NAEOTOM Alpha

High-Pitch Photon-counting Detector Computed Tomography Angiography of the Aorta: Intraindividual Comparison to Energy-Integrating Detector Computed Tomography at Equal Radiation Dose.

Euler, A., Higashigaito, K., Mergen, V., Sartoretti, T., Zanini, B., Schmidt, B., Flohr, T. G., Ulzheimer, S., Eberhard, M., Alkadhi, H. (2021). *Investigative Radiology*, 57(2), 115-121. <https://doi.org/10.1097/RLI.0000000000000816>

NAEOTOM Alpha

Coronary Calcium Scoring with First Generation Dual-Source Photon-counting CT-First Evidence from Phantom and In-Vivo Scans.

Eberhard, M., Mergen, V., Higashigaito, K., Allmendinger, T., Manka, R., Flohr, T., Schmidt, B., Euler, A., Alkadhi, H. (2021). *Diagnostics*, 11(9), 1708. <https://doi.org/10.3390/diagnostics11091708>

NAEOTOM Alpha

Tube voltage-independent coronary calcium scoring on a first-generation dual-source Photon-counting CT-a proof-of-principle phantom study.

Mergen, V., Higashigaito, K., Allmendinger, T., Manka, R., Euler, A., Alkadhi, H., Eberhard, M. (2021). *International Journal of Cardiovascular Imaging*, 38(4), 905-912. <https://doi.org/10.1007/s10554-021-02466-y>

3. Abdominal imaging

2025

NAEOTOM Alpha

Follow-up Recommendation Rates With Abdominopelvic Photon Counting CT: Comparison With Conventional Dual-Energy and Single-Energy CT

Dane, B., Attlassy, Y., Ihionkhan, E., Gyftopoulos, S., and Bansal, B.

Abdominal Radiology (NY). (2025) <https://doi.org/10.1007/s00261-025-05343-7>

NAEOTOM Alpha

A Practical Rule-of-Thumb to Adapt Contrast Media Dose in Photon-Counting Detector CT: The 10-to-5 Rule

Jeukens, C.R.L.P.N., Martens, B., Vandewall, J., Jasper, S., Schrijnemaekers, G., Wildberger, J.E., and Flohr, T.G.

Investigative Radiology. (2025) <https://doi.org/10.1097/RLI.0000000000001253>

NAEOTOM Alpha

LI-RADS: Concordance Between Energy-Integrating Computed Tomography, Photon-Counting Detector Computed Tomography and Magnetic Resonance Imaging

Müller, L., Jorg, T., Stoehr, F., Grunz, J.P., Graafen, D., Halfmann, M.C., Huflage, H., Foerster, F., Mittler, J., Pinto Dos Santos, D., Bäuerle, T., Kloeckner, R., and Emrich, T.

Cancer Imaging. 25(1):99 (2025) <https://doi.org/10.1186/s40644-025-00922-9>

NAEOTOM Alpha

Photon-Counting Detector CT Allows Abdominal Virtual Monoenergetic Imaging at Lower Kiloelectron Volt Level With Lower Noise Using Lower Radiation Dose: A Prospective Matched Study Compared to Energy-Integrating Detector CT

Zhang, H., Hu, Y., Wang, L., Xing, Y., Xu, Z., Lu, J., Yang, J., Ding, B., Yuan, F., and Zhong, J.

Journal of Imaging and Information in Medicine. (2025) <https://doi.org/10.1007/s10278-025-01593-5>

NAEOTOM Alpha

Improved display and detection of small renal stones using photon-counting detector CT compared to conventional energy-integrating detector CT.

RECOMMENDED

Esquivel, A., Potretzke, T., Ferrero, A. et al.

Abdom Radiol (2025). <https://doi.org/10.1007/s00261-024-04781-z>

NAEOTOM Alpha

Optimizing photon counting CT enterography: determining the optimal virtual monoenergy for bowel imaging.

Sharifi, A., O'Donnell, T. & Dane, B.

Abdom Radiol (2025). <https://doi.org/10.1007/s00261-025-04832-z>

NAEOTOM Alpha

Spectral Differentiation of Hyperdense Non-Vascular and Vascular Renal Lesions Without Solid Components in Contrast-Enhanced Photon-Counting Detector CT Scans—A Pilot Study. Diagnostics, 15(1).

Becker, J., Feitelson, L. M., Risch, F., Canali, L., Kaufmann, D., Wudy, R., Jehs, B., Haerting, M., Wollny, C., Scheurig-Muenkler, C., Kroencke, T., Schwarz, F., Decker, J. A., & Bette, S. (2025).

Diagnostics <https://doi.org/10.3390/diagnostics15010079>

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NAEOTOM Alpha

Automated Kidney Stone Composition Analysis with Photon-Counting Detector CT, a Performance Study—A Phantom Study.

Dillinger, D., Waldeck, S., Overhoff, D., Faby, S., Jürgens, M., Schmidt, B., Hesse, A., Schoch, J., Schmelz, H., Stoll, R., & Nestler, T. (2024).

Academic Radiology, 1–8. <https://doi.org/10.1016/j.acra.2024.10.045>

NAEOTOM Alpha

Photon-counting computed tomography versus energy-integrating computed tomography for detection of small liver lesions : comparison using a virtual framework imaging.

Felice, N., Wildman-tobriner, B., & Segars, P. (2024).

11(5), 1–13. <https://doi.org/10.1117/1.JMI.11.5.053502>

NAEOTOM Alpha

Ultra - High - Resolution Photon - Counting Detector CT Benefits Visualization of Abdominal Arteries : A Comparison to Standard - Reconstruction.

Zhang, H., Xing, Y., Wang, L., Hu, Y., Xu, Z., Chen, H., Lu, J., & Yang, J. (2024).

Journal of Imaging Informatics in Medicine, 0123456789. <https://doi.org/10.1007/s10278-024-01232-5>

NAEOTOM Alpha

Photon-counting Detector CT for Liver Fat Quantification: Validation across Protocols in Metabolic Dysfunction-associated Steatotic Liver Disease.

Lin, H., Xu, X., Deng, R., Xu, Z., Cai, X., Dong, H., & Yan, F. (2024).
Radiology, 312(3), e240038. <https://doi.org/10.1148/radiol.240038>

NAEOTOM Alpha

Imaging the pancreas with photon-counting CT – A review of normal pancreatic anatomy.

Brandt, E. G. S., Müller, C. F., Thomsen, H., Rodell, A. B., Ibragimov, B., & Andersen, M. B. (2024).
European Journal of Radiology, 181(April), 111736. <https://doi.org/10.1016/j.ejrad.2024.111736>

NAEOTOM Alpha

The reliability of virtual non-contrast reconstructions of photon-counting detector CT scans in assessing abdominal organs.

Dudás, I., Schultz, L., Benke, M., Szücs, Á., Kaposi, P. N., Sziártó, A., Maurovich-horvat, P., & Budai, B. K. (2024).
BMC Medical imaging. <https://doi.org/10.1186/s12880-024-01419-w>

NAEOTOM Alpha

Sharper, Smarter, Safer: Unpacking the Potential of Photon-Counting CT in Urolithiasis Imaging.

Nezami, N., & Malayeri, A. A. (2024).
Radiology, 312(1), 1–2. <https://doi.org/10.1148/radiol.240497>

NAEOTOM Alpha

PCD-CT enables contrast media reduction in abdominal imaging compared to an individualized kV-adapted contrast media injection protocol on EID-CT.

Hoelijmakers, E. J. I., Stammen, L., Wildberger, J. E., Eijssvoogel, N. G., Hersbach, J. M., Pernot, J. C. J. G., Flohr, T. G., Martens, B., & Jeukens, C. R. L. P. N. (2024).
European Journal of Radiology, 179, 111680. <https://doi.org/10.1016/j.ejrad.2024.111680>

NAEOTOM Alpha

Low-dose Ultra-high-resolution Photon-Counting Detector CT for Visceral Artery CT Angiography: A Preliminary Study.

Wang, L., Hu, Y., Zhong, J., Yue, X., Xu, Z., Ding, B., Chu, J., Yan, F., Yao, W., Zhang, H., & Hu, W. (2024).
Academic Radiology, 1–13. <https://doi.org/10.1016/j.acra.2024.06.044>

NAEOTOM Alpha

Photon-Counting CT Shows Side-Branch Intraductal Papillary Mucinous Neoplasm- Pancreatic Duct Connection

Khanungwanitkul, K., & Schwartz, F. R. (2024).
Radiology 2024; 312(2):e240611 <https://doi.org/10.1148/radiol.240611>

NAEOTOM Alpha

Submillisievert Abdominal Photon-Counting CT versus Energy-integrating Detector CT for Urinary Calculi Detection: Impact on Diagnostic Confidence.

Huflage, H., Kunz, A. S., Patzer, T. S., Pichlmeier, S., Westhofen, T., Gruschwitz, P., Heidenreich, J. F., Lennartz, S., Bley, T. A., & Grunz, J. P. (2024).
Radiology, 312(1). <https://doi.org/10.1148/radiol.232453>

NAEOTOM Alpha

Investigation of abdominal artery delineation by photon-counting detector CT.

Ota, T., Onishi, H., Itoh, T., Fukui, H., Tsuboyama, T., Nakamoto, A., Enchi, Y., Tatsumi, M., & Tomiyama, N. (2024).
Radiologia Medica, 0123456789. <https://doi.org/10.1007/s11547-024-01858-z>

NAEOTOM Alpha

Comparison of automated kidney stone size measurement and volumetry in photon counting CT compared to 3rd generation dual energy CT and physically measurements – an ex vivo study.

Nestler, T., Stoll, R., Schmelz, H., Schoch, J., Hesse, A., Nestler, K., Smolka, K., Faby, S., Jürgens, M., Schmidt, B., Spornitz, K., Overhoff, D., & Waldeck, S. (2024).
World Journal of Urology, 42(1), 1–7. <https://doi.org/10.1007/s00345-024-05114-x>

NAEOTOM Alpha

Improved image quality and abdominal lesion detection with photon-counting CT compared to dual-source CT: New evidence from a phantom study.

Macri, F. (2024).
Diagnostic and Interventional Imaging, 000, 9–10. <https://doi.org/10.1016/j.diii.2024.06.008>

NAEOTOM Alpha

Photon-counting CT: technical features and clinical impact on abdominal imaging.

Onishi, H., Tsuboyama, T., Nakamoto, A., Ota, T., Fukui, H., Tatsumi, M., Honda, T., Kiso, K., Matsumoto, S., Kaketaka, K., Enchi, Y., Kawabata, S., Nakasone, S., & Tomiyama, N. (2024).
Abdominal Radiology, 0123456789. <https://doi.org/10.1007/s00261-024-04414-5>

NAEOTOM Alpha

Evaluation of Incidental Findings on Abdominopelvic CT: Potential Benefit of Photon-counting CT Over Conventional Single-energy CT.

Ichikawa, T., Yamamuro, H., Kobayashi, M., Yoshida, R., Katayama, T., Nishizawa, K., Watanabe, S., Furuya, H., & Hashimoto, J. Tokai Journal of Experimental and Clinical Medicine, 49(2), 73–81. (2024).

NAEOTOM Alpha

Photon-counting detector CT with an ultra-low-dose contrast media to diagnose a renal pseudoaneurysm: A case report.

Noro, T., Ojio, Y., Urano, M., Ohta, K., Suzuki, K., Sato, T., Nakayama, K., Ohba, S., Kawai, T., Itoh, T., & Hiwatashi, A. (2024). Radiology Case Reports, 19(9), 3618–3621. <https://doi.org/10.1016/j.radcr.2024.05.077>

NAEOTOM Alpha

Image quality of opportunistic breast examinations in photon-counting computed tomography: A phantom study.

Sawall, S., Baader, E., Wolf, J., Maier, J., Schlemmer, H. P., Schönberg, S. O., Sechopoulos, I., & Kachelrieß, M. (2024). Physica Medica, 122(April). <https://doi.org/10.1016/j.ejimp.2024.103378>

NAEOTOM Alpha

Abdominal image quality and dose reduction with energy-integrating or photon-counting detectors dual-source CT: A phantom study. Diagnostic and Interventional Imaging,

Joël Greffier, Dabli, D., Faby, S., Pastor, M., Croisille, C., de Oliveira, F., Erath, J., & Beregi, J. P. (2024). Diagnostic and Interventional Imaging, 1–7. <https://doi.org/10.1016/j.diii.2024.05.002>

NAEOTOM Alpha

Photon-Counting Detector CT: Potential for 75% Reduction in Contrast Medium Amount: A Phantom Study.

Higaki, F., Morimitsu, Y., Iguchi, T., Saito, H., Takaki, H., Nakagoshi, A., Wada, M., Uka, M., Akagi, N., Mitsuhashi, T., Matsui, Y., & Hiraki, T. (2024). Acta Medica Okayama, 78(2), 135–142. <https://doi.org/10.18926/AMO/66916>

NAEOTOM Alpha

Iodine quantification of renal lesions: Preliminary results using spectral-based material extraction on photon-counting CT.

Tóth, A., Chamberlin, J. H., Mendez, S., Varga-Szemes, A., & Hardie, A. D. (2024). Journal of Clinical Imaging Science, 14(7), 1–8. https://doi.org/10.25259/JCIS_1_2024

NAEOTOM Alpha

Photon-Counting Computed Tomography Compared With Conventional Energy-Integrating Detector Portal Venous Phase Computed Tomography.

Dane, B., Mabud, T., Melamud, K., Ginocchio, L., Smereka, P., Okyere, M., Ct, R. T. R., Donnell, T. O., & Megibow, A. (2024). Journal of Computer Assisted Tomography 1–8. <https://doi.org/10.1097/RCT.0000000000001617>

NAEOTOM Alpha

Image quality of abdominal photon-counting CT with reduced contrast media dose: Evaluation of reduced contrast media protocols during the COVID19 pandemic supply shortage.

Layer, Y. C., Isaak, A., Mesrobian, N., Kupczyk, P. A., Luetkens, J. A., Dell, T., Attenberger, U. I., & Kuetting, D. (2024). Heliyon, 10(6), e28142. <https://doi.org/10.1016/j.heliyon.2024.e28142>

NAEOTOM Alpha

Evaluation of ECG-Gated, High-Pitch Thoracoabdominal Angiographies With Dual-Source Photon-Counting Detector Computed Tomography.

Rippel, K., Luitjens, J., Habeeballah, O., Scheurig-Muenkler, C., Bette, S., Braun, F., Kroencke, T. J., Schwarz, F., & Decker, J. A. (2024). Journal of Endovascular Therapy. <https://doi.org/10.1177/15266028241230943>

NAEOTOM Alpha

Photon-counting CT using multi-material decomposition algorithm enables fat quantification in the presence of iron deposits.

Hollý, S., Chmelík, M., Suchá, S., Suchý, T., Beneš, J., Pátrovič, L., & Juskanič, D. (2024). Physica Medica, 118. <https://doi.org/10.1016/j.ejimp.2024.103210>

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NAEOTOM Alpha

Photon-Counting Computed Tomography Versus Energy-Integrating Dual-Energy Computed Tomography: Virtual Noncontrast Image Quality Comparison.

Dane, B., Ruff, A., O'Donnell, T., El-Ali, A., Ginocchio, L., Prabhu, V., & Megibow, A. (2023). Journal of Computer Assisted Tomography, 1–6. <https://doi.org/10.1097/rct.0000000000001562>

NAEOTOM Alpha

Photon-counting CT urogram: optimal acquisition potential (kV) determination for virtual noncontrast creation.

Dane, B., Freedman, D., Qian, K., Ginocchio, L., Smereka, P., & Megibow, A. (2023). Abdominal Radiology, 0123456789. <https://doi.org/10.1007/s00261-023-04113-7>

NAEOTOM Alpha

Reduced versus standard dose contrast volume for contrast-enhanced abdominal CT in overweight and obese patients using photon counting detector technology vs. second-generation dual-source energy integrating detector CT.

Hagen, F., Estler, A., Hofmann, J., Walder, L., Faby, S., Almarie, B., Nikolaou, K., Wrazidlo, R., & Horger, M. (2023). *European Journal of Radiology*, 169, 111153. <https://doi.org/10.1016/j.ejrad.2023.111153>

NAEOTOM Alpha

Crohn's disease inflammation severity assessment with iodine density from photon counting CT enterography: comparison with endoscopic histopathology.

Dane, B., Qian, K., Soni, R., & Megibow, A. (2023). *Abdominal Radiology*, 0123456789. <https://doi.org/10.1007/s00261-023-04060-3>

NAEOTOM Alpha

Multiphase photon counting detector CT data sets – Which combination of contrast phase and virtual non-contrast algorithm is best suited to replace true non-contrast series in the assessment of active bleeding?

Risch, F., Bette, S., Sinzinger, A., Rippel, K., Scheurig-Muenkler, C., Kroencke, T., & Decker, J. A. (2023). *European Journal of Radiology*, 168(September), 111125. <https://doi.org/10.1016/j.ejrad.2023.111125>

NAEOTOM Alpha

Is There Still a Role for Two-Phase Contrast-Enhanced CT and Virtual Monoenergetic Images in the Era of Photon-counting Detector CT ?

Estler, A., Nikolaou, K., Schönberg, S. O., Bamberg, F., Froelich, M. F., Tollens, F., Verloh, N., Weiss, J., Horger, M., & Hagen, F. *Diagnostics* 2023, 13, 1454. <https://doi.org/10.3390/diagnostics13081454>

NAEOTOM Alpha

Impact of CT Photon-counting Virtual Monoenergetic Imaging on Visualization of Abdominal Arterial Vessels.

Dillinger, D., Overhoff, D., Booz, C., Kaatsch, H. L., Piechotka, J., Hagen, A., Froelich, M. F., Vogl, T. J., & Waldeck, S. (2023). *Diagnostics*, 13(5). <https://doi.org/10.3390/diagnostics13050938>

NAEOTOM Alpha

Liver Fat Quantification in Photon Counting CT in head to head comparison with clinical MRI; first experience.

Schwartz, F. R., Ashton, J., Wildman-tobriner, B., Ramirez-giraldo, J. C., Samei, E., Bashir, M. R., & Marin, D. (2023). *European Journal of Radiology*, 110734. <https://doi.org/10.1016/j.ejrad.2023.110734>

NAEOTOM Alpha

Potential of Unenhanced Ultra-Low-Dose Abdominal Photon-counting CT with Tin Filtration : A Cadaveric Study.

Huflage, H., Grunz, J., Patzer, T. S., Pannenbecker, P., Feldle, P., Sauer, S. T., Petritsch, B., Ergün, S., Bley, T. A., & Kunz, A. S. (2023). *Diagnostics* 13.603 <https://doi.org/10.3390/diagnostics13040603>

NAEOTOM Alpha

Exploiting the Potential of Photon-counting CT in Abdominal Imaging.

Schwartz, F. R., Samei, E., & Marin, D. (2023). *Special Issue. 00(00)*, 1–11. *Investigative Radiology*. <https://doi.org/10.1097/RLI.0000000000000949>

2022

NAEOTOM Alpha

Comparison of Image Quality and Dose Exposure of Contrast-Enhanced Abdominal CT acquired on a 1st Generation Clinical Dual-Source Photon-counting Detector CT in Obese Patients vs. a 2nd Generation Dual-Source Dual Energy Integrating Detector CT.

Hagen, F., Hofmann, J., Wrazidlo, R., Gutjahr, R., Schmidt, B., Faby, S., Nikolaou, K., Horger, M. (2022). *European Journal of Radiology*, 151, 110325. <https://doi.org/10.1016/j.ejrad.2022.110325>

4. Thoracic and pulmonary imaging

2025

NAEOTOM Alpha

A Question of Dose? Ultra-Low Dose Chest CT on Photon-Counting CT in People With Cystic Fibrosis

Opitz, M., Welsner, M., Tazeoglu, H.I., Stehling, F., Sutharsan, S., Westhölter, D., Büscher, E., Taube, C., Guberina, N., Bos, D., Drews, M., Rosok, D., Zensen, S., Haubold, J., Umutlu, L., Forsting, M., and Frings, M.
Tomography. 11(12):134 (2025) <https://doi.org/10.3390/tomography11120134>

NAEOTOM Alpha

Optimizing Photon-Counting CT Pulmonary Angiography for Robustness, Combining Mixed Bolus, Fixed Scan Delay and Low keV

Schwartz, F.R., Khanungwanitkul, K., Czajkowski, B., Duraisamy, S., Jhala, K., Hammer, M.M., and Sodickson, A.D.
European Journal of Radiology. 195:112540 (2026) <https://doi.org/10.1016/j.ejrad.2025.112540>

NAEOTOM Alpha

Photon-Counting Computed Tomography in Thoracic Surgery: A Narrative Review of Current and Future Applications

Mangiameli, G., Brascia, D., Lococo, F., and Marulli, G.
Cancers (Basel). 17(22):3656 (2025) <https://doi.org/10.3390/cancers17223656>

NAEOTOM Alpha

Reducing Contrast Media Dosage for Pulmonary Embolism CTPA in PCD-CT: A Comparative Study of EID-CT and PCD-CT in the Era of Individualized Protocolling

Stammen, L., Hoeijmakers, E.J.I., Flohr, T.G., Gietema, H.A., Vandewall, J., Wildberger, J.E., Jeukens, C.R.L.P.N., and Martens, B.
European Radiology. (2025) <https://doi.org/10.1007/s00330-025-12054-6>

NAEOTOM Alpha

The Effect of X-ray Dose Photon-Counting Detector Computed Tomography on Nodule Properties in a Lung Cancer Screening Cohort: A Prospective Study

Kerber, Bjarne MD; Ensle, Falko MD; Kroschke, Jonas MD; Strappa, Cecilia MD; Stolzmann-Hinzpeter, Ricarda MD; Blüthgen, Christian MD; Marty, Marc MD; Larici, Anna Rita MD; Frauenfelder, Thomas MD; Jungblut, Lisa MD.
Investigative Radiology ():10.1097/RLI.0000000000001174, March 10, 2025. <https://doi.org/10.1097/RLI.0000000000001174>

RECOMMENDED

NAEOTOM Alpha

Photon-counting detector CT provides superior subsolid nodule characterization compared to same-day energy-integrating detector CT

Wang, J., Huang, Z., Zhu, Z. et al.
Eur Radiol 35, 2979–2989 (2025). <https://doi.org/10.1007/s00330-024-11204-6>

NAEOTOM Alpha

Lung microvasculopathy in chronic thromboembolic pulmonary hypertension: high-resolution findings with photon-counting detector CT in 29 patients

Remy-Jardin, M., Duhamel, A., Delobelle, M. et al.
Eur Radiol (2025). <https://doi.org/10.1007/s00330-025-11561-w>

NAEOTOM Alpha

Reconstruction Kernel Optimization for Ultra-High-Resolution Photon-Counting Detector Computed Tomography of the Lung.

Tóth, Adrienn MD; Chamberlin, Jordan H. MD; Smith, Carter D. BS; Maisuria, Dhruv BS; McGuire, Aaron M. BS; Schoepf, U. Joseph MD; O'Doherty, Jim PhD; Munden, Reginald F. MD, DMD, MBA; Burt, Jeremy MD†; Baruah, Dhiraj MD; Kabakus, Ismail M. MD, PhD.
Journal of Computer Assisted Tomography 49(3):p 456-461, May/June 2025. <https://doi.org/10.1097/RCT.0000000000001694>

NAEOTOM Alpha

Photon-Counting Detector CT Iodine Maps Versus SPECT/CT: Advancing Lung Perfusion Imaging in Chronic Thromboembolic Pulmonary Hypertension.

Kerber, Bjarne MD; Hüllner, Martin MD; Maurer, Alexander MD; Flohr, Thomas PhD; Ulrich, Silvia MD; Lichtblau, Mona MD; Frauenfelder, Thomas MD; Franckenberg, Sabine MD.
Investigative Radiology ():10.1097/RLI.0000000000001163, February 28, 2025. <https://doi.org/10.1097/RLI.0000000000001163>

RECOMMENDED

NAEOTOM Alpha

Reproducibility of lung density quantification across photon-counting and conventional energy-integrating CT: a comparative study

Saman Sotoudeh-Paima, Ehsan Samei, Ehsan Abadi.
British Journal of Radiology, 2025; <https://doi.org/10.1093/bjrtqaf103>

RECOMMENDED

NAEOTOM Alpha

Are we systematically overdosing women ? Revisiting standardized contrast protocols for thoracoabdominal CT scans.

Becker, J., Huber, A., Bette, S., Rubeck, A., Arndt, T. T., Müller, G., Risch, F., Canalini, L., Wollny, C., Schwarz, F., Scheurig-muenkler, C., Kroencke, T., & Decker, J. A. (2025).

European Radiology. <https://doi.org/10.1007/s00330-024-11329-8>

2024

NAEOTOM Alpha

Direct comparison of photon counting-CT and conventional CT in image quality of lung nodules: A systematic review and meta-analysis.

Mohammadzadeh, S., Mohebbi, A., Kiani, I., & Mohammadi, A. (2024).

European Journal of Radiology, 111859. <https://doi.org/10.1016/j.ejrad.2024.111859>

NAEOTOM Alpha

Photon-counting detector CT provides superior subsolid nodule characterization compared to same-day energy-integrating detector CT.

Wang, J., Huang, Z., Zhu, Z., Wang, B., Han, W., Hu, G., Ying, Z., Yu, Y., Wang, Y., Pan, Z., Wang, D., Song, Y., Li, H., Liu, L., Song, L., Liang, N., & Song, W. (2024).

European Radiology. <https://doi.org/10.1007/s00330-024-11204-6>

NAEOTOM Alpha

Reconstruction Kernel Optimization for Ultra-High-Resolution Photon-Counting Detector Computed Tomography of the Lung.

Tóth, A., Chamberlin, J. H., Smith, C. D., Maisuria, D., McGuire, A. M., Schoepf, U. J., O'Doherty, J., Munden, R. F., Burt, J., Baruah, D., & Kabakus, I. M. (2024).

Journal of Computer Assisted Tomography, 00(00), 1–6. <https://doi.org/10.1097/RCT.0000000000001694>

NAEOTOM Alpha

Photon-Counting CT Iodine Maps for Diagnosing Chronic Pulmonary Thromboembolism: A Pilot Study.

Kerber, B., Flohr, T., Ulrich, S., Lichtblau, M., Frauenfelder, T., & Franckenberg, S. (2024).

Investigative Radiology, 1–6. <https://doi.org/10.1097/RLI.0000000000001134>

NAEOTOM Alpha

Potential dose reduction and image quality improvement in chest CT with a photon-counting CT compared to a new dual-source CT.

Greffier, J., Dabli, D., Faby, S., Pastor, M., Oliveira, F. de, Croisille, C., Erath, J., & Beregi, J. P. (2024).

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Assessment of Emphysema on X-ray Equivalent Dose Photon-Counting Detector CT: Evaluation of Visual Scoring and Automated Quantification Algorithms.

Kerber, B., Ensle, F., Kroschke, J., Strappa, C., Larici, A. R., Frauenfelder, T., & Jungblut, L. (2024).

Investigative Radiology, 1–8. <https://doi.org/10.1097/RLI.0000000000001128>

NAEOTOM Alpha

Improved discriminability of severe lung injury and atelectasis in thoracic trauma at low keV virtual monoenergetic images from photon-counting detector CT.

Kaatsch, H. L., Völlmecke, M. F., Becker, B. V., Dillinger, D., Kubitscheck, L., Wöhler, A., Schaaf, S., Piechotka, J., Schreyer, C., Schwab, R., Overhoff, D., & Waldeck, S. (2024).

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Low-dose high-resolution chest CT in adults with cystic fi brosis : intraindividual comparison between photon-counting and energy-integrating detector CT.

Frings, M., Welsner, M., Mousa, C., Zensen, S., Salhöfer, L., Meetschen, M., Beck, N., Bos, D., Westhölter, D., Wienker, J., Taube, C., Umutlu, L., Schaarschmidt, B. M., Forsting, M., Haubold, J., Sutharsan, S., & Opitz, M. (2024).

European Radiology Experimental <https://doi.org/10.1186/s41747-024-00502-9>

NAEOTOM Alpha

Accuracy of Ultralow-Dose Photon-counting CT in the Detection of Lung Changes after Lung Transplant.

Milos, R., Lechner, L., Korajac, A., & Kifjak, D. (2024).

Radiology 2024; 312(3):e240271. <https://doi.org/10.1148/radiol.240271>

NAEOTOM Alpha

Pulmonary nodule visualization and evaluation of AI-based detection at various ultra-low-dose levels using photon-counting detector CT.

Jungblut, L., Euler, A., Landsmann, A., Englmaier, V., Mergen, V., Se, M., & Frauenfelder, T. (2024).

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NAEOTOM Alpha

Improved detection of small pulmonary embolism on unenhanced computed tomography using an artificial intelligence-based algorithm – a single centre retrospective study.

Hagen, F., Vorberg, L., Thamm, F., Ditt, H., Maier, A., Michael, J., Ghibes, P., Niklas, M., Patrick, B., Konstantin, K., & Marius, N. (2024).

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NAEOTOM Alpha

Assessment of interstitial lung disease in a systemic sclerosis patient cohort using photon-counting detector CT with ultra-high resolution and a 1024-pixel image matrix 1024-matrix size and UHR mode for SSs-ILD assessment in Photon-Counting CT. (2024)

Mergen, V., Jordan, S., Mihai, C., & Dister, O.

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NAEOTOM Alpha

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NAEOTOM Alpha

Dual-source photon-counting computed tomography for coronary in- stent observation : influence of heart rate and virtual monoenergetic image.

Ogawa, R., Yanagawa, M., Hata, A., Yamagata, K., Ninomiya, K., & Doi, S. (2024).

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NAEOTOM Alpha

Improved Pulmonary Artery Evaluation Using High-Pitch Photon-Counting CT Compared to High-Pitch Conventional Dual-energy CT.

Ct, R. C. D., Yalon, M., Hoodeshenas, S., Chan, A., Horst, K. K., Crum, I., Thorne, J. E., Lee, Y. S., Yu, L., Mccollough, C. H., Fletcher, J. G., & Rajiah, P. S. (2024).

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NAEOTOM Alpha

A new era of high-resolution CT diagnostics of the lung : improved image quality , detailed morphology , and reduced radiation dose with high-resolution photon- counting CT of the lungs compared to high- resolution energy-integrated CT.

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NAEOTOM Alpha

Photon-Counting Detector CT Radiological-Histological Correlation in Cadaveric Human Lung Nodules and Airways.

Hata, A., Yanagawa, M., & Ninomiya, K. (2024).

Invest. Rad. <https://doi.org/10.1097/RLI.0000000000001117>

NAEOTOM Alpha

Photon-counting Detector CT (PCD-CT) generated iodine maps to characterize parenchymal lung disease : a feasibility study.

Huisinga, C., Bredemeier, S., Hartung, D., Scharm, S., Werncke, T., Renz, D., Wacker, F., & Shin, H. (2024).

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NAEOTOM Alpha

Photon-counting CT for pulmonary embolisms—when radiologists don’t have to choose between image quality or motion artifacts.

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NAEOTOM Alpha

Polyenergetic reconstruction mitigates streak artifacts by dual source imaging in chest photon counting detector computed tomography.

Maisuria, D., Chamberlin, J. H., Baruah, D., Hinen, S., O’Doherty, J., McGuire, A., Knight, H., Schoepf, U. J., Munden, R. F., & Kabakus, I. M. (2024).

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NAEOTOM Alpha

Image quality of lung perfusion with photon-counting-detector CT: comparison with dual-source, dual-energy CT.

Remy-Jardin, M., Guiffault, L., Oufriche, I., Duhamel, A., Flohr, T., Schmidt, B., & Remy, J. (2024).
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NAEOTOM Alpha

The Best of Both Worlds: Ultra-high-pitch Pulmonary Angiography with Free-Breathing Technique by Means of Photon-Counting Detector CT for Diagnosis of Acute Pulmonary Embolism.

Pannenbecker, P., Heidenreich, J. F., Huflage, H., Gruschwitz, P., Patzer, T. S., Weng, A. M., Grunz, J. P., Kunz, A. S., Bley, T. A., & Petritsch, B. (2024).
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NAEOTOM Alpha

Diagnosis of acute pulmonary embolism: when photon-counting-detector CT replaces energy-integrating-detector CT in daily routine.

Remy-Jardin, M., Oufriche, I., Guiffault, L., Duhamel, A., Flohr, T., Schmidt, B., & Remy, J. (2024).
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NAEOTOM Alpha

Technology Characterization Through Diverse Evaluation Methodologies : Application to Thoracic Imaging

P. C., Rajagopal, J. R., Schwartz, F. R., McCabe, C., Farhadi, F., Zarei, M., Ria, F., Abadi, E., Segars, P., Ramirez-giraldo, J. C., Jones, E. C., Henry, T., Marin, D., & Samei, E. (2024).
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NAEOTOM Alpha

Potential of photon counting computed tomography derived spectral reconstructions to reduce beam-hardening artifacts in chest CT.

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Photon Counting Computed Tomography with the Radiation Dose of a Chest X-Ray: Feasibility and Diagnostic Yield.

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Diagnostic Accuracy of Contrast-Enhanced Thoracic Photon-counting Computed Tomography for Opportunistic Locoregional Staging of Breast Cancer Compared With Digital Mammography.

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Investigative Radiology, 1–6. <https://doi.org/10.1097/RLI.0000000000001051>

NAEOTOM Alpha

Photon-counting detector CT allows significant reduction in radiation dose while maintaining image quality and noise on non-contrast chest CT.

Donuru, A., Araki, T., Dako, F., Dave, J. K., Perez, R. P., Xu, D., Nachiappan, A., Barbosa, E. M., Noel, P., Litt, H., & Knollman, F. (2023).
European Journal of Radiology Open, 11(October), 100538. <https://doi.org/10.1016/j.ejro.2023.100538>

NAEOTOM Alpha

Detectability and Volumetric Accuracy of Pulmonary Nodules in Low-Dose Photon-counting Detector Computed Tomography: An Anthropomorphic Phantom Study.

Hop, J. F., Walstra, A. N. H., Pelgrim, G.-J., Xie, X., Panneman, N. A., Schurink, N. W., Faby, S., van Straten, M., de Bock, G. H., Vliegthart, R., & Greuter, M. J. W. (2023).
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NAEOTOM Alpha

Image Quality and Radiation Dose of CTPA With Iodine Maps: A Prospective Randomized Study of High-Pitch Mode Photon-counting Detector CT Versus Energy-Integrating Detector CT.

Pannenbecker, P., Heidenreich, J. F., Grunz, J.-P., Huflage, H., Gruschwitz, P., Patzer, T. S., Feldle, P., Bley, T. A., & Petritsch, B. (2023).
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Ultra-high-resolution Photon-counting detector computed tomography of the lungs: Phantom and clinical assessment of radiation dose and image quality.

Chamberlin, J. H., Smith, C. D., Maisuria, D., Parrish, J., van Swol, E., Mah, E., Emrich, T., Schoepf, U. J., Varga-Szemes, A., O'Doherty, J., Munden, R. F., Tipnis, S. V., Baruah, D., & Kabakus, I. M. (2023).
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Impact of ultra-high-resolution imaging of the lungs on perceived diagnostic image quality using Photon-counting CT.
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Investigating the Small Pixel Effect in Ultra-High Resolution Photon-counting CT of the Lung.
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Image quality of photon counting and energy integrating chest CT – Prospective head-to-head comparison on same patients.
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Regional Pulmonary Morphology and Function : Photon-counting CT Assessment
Scharm, S.C., Schaefer-Prokop, C., Winther, H.B., Huisinga, C., Werncke, T. Vogel-Claussen, J., Wacker, F.K., Shin, H.
Radiology 2023; 308(1):e230318 • <https://doi.org/10.1148/radiol.230318>

NAEOTOM Alpha

Minimizing Contrast Media Dose in CT Pulmonary Angiography with Clinical Photon Counting Using High Pitch Technique.
Saeed, S., Niehoff, J. H., Boriesosdick, J., Michael, A., Woeltjen, M. M., Surov, A., Moenninghoff, C., Borggreffe, J., & Kroeger, J. R.
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Academic Radiology, 12, 1–7. <https://doi.org/10.1016/j.acra.2023.05.018>

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Photon - counting CT for diagnosis of acute pulmonary embolism : potential for contrast medium and radiation dose reduction.
Pannenbecker, P., Huflage, H., Peter, J., Philipp, G., Theresa, G., Weng, A. M., Heidenreich, J. F., Bley, T. A., & Petritsch, B. (2023).
European Radiology, <https://doi.org/10.1007/s00330-023-09777-9>

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Ultra-high resolution CT imaging of interstitial lung disease: impact of Photon-counting CT in 112 patients.
Gaillandre, Y., Duhamel, A., Flohr, T., Faivre, J. B., Khung, S., Hutt, A., Felloni, P., Remy, J., & Remy-Jardin, M. (2023).
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Image Quality Analysis of Photon-counting CT Compared with Dual-Source CT: A Phantom Study for Chest CT Examinations.
Deleu, M., Maurice, J. B., Devos, L., Remy, M., & Dubus, F. (2023).
Diagnostics, 13(7). <https://doi.org/10.3390/diagnostics13071325>

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Photon-counting computed tomography in the assessment of rheumatoid arthritis-associated interstitial lung disease: an initial experience.
Marton, N., Gyebrnar, J., Fritsch, K., Majnik, J., Nagy, G., Simon, J., Müller, V., Tarnoki, A. D., Tarnoki, D. L., & Maurovich-Horvat, P.
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Diagnostic and Interventional Radiology. <https://doi.org/10.4274/dir.2023.221959>

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Ultra-High-Resolution Photon-counting CT Imaging of the Chest A New Era for Morphology and Function.
Remy-jardin, M., Hutt, A., Flohr, T., Faivre, J., Felloni, P., Khung, S., (2023).
Investigative Radiology. <https://doi.org/10.1097/RLI.0000000000000968>

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Lung Cancer Screening Using Clinical Photon-counting Detector Computed Tomography and A Prospective Patient Study.
Inoue, A., Tucker, F., Walkoff, L. A., Levin, D. L., Hartman, T. E., Burke, K. A., Rajendran, K., Yu, L., Mccollough, C. H., & Fletcher, J. G.
(2022).
Journal of Computer Assisted Tomography, 1–7. <https://doi.org/10.1097/RCT.0000000000001419>

NAEOTOM Alpha

Ultra-High-Resolution Photon-counting Detector CT of the Lungs: Association of Reconstruction Kernel and Slice Thickness With Image Quality
Milos, R., Röhrich, S., Prayer, F., Strassl, A., Beer, L., Heidinger, B. H., Weber, M., Watzenboeck, M. L., Kifjak, D., & Tamandl, D.
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American Journal of Radiology <https://doi.org/10.2214/AJR.22.28515>

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Accuracy of Nodule Volume and Airway Wall Thickness Measurement Using Low-Dose Chest CT on a Photon-counting Detector CT Scanner.

Dunning, C. A. S., Jeffrey, F., Winfree, T., Rajendran, K., Leng, S., Levin, D. L., Tucker, F., Fletcher, J. G., Mccollough, C. H., & Yu, L. Investigative Radiology . (2022). <https://doi.org/10.1097/RLI.0000000000000933>

NAEOTOM Alpha

Detection of Post-COVID-19 Lung Abnormalities: Photon-counting CT versus Same-day Energy-integrating Detector CT

Prayer, F., Kienast, P., Strassl, A., Moser, P., Bernitzky, D., Milacek, C., Gyöngyösi, M., Kifjak, D., Röhrich, S., Beer, L., Watzenboeck, M., Milos, R., Wassipaul, C., Gompelmann, D., Herold, C. J., Prosch, H., Heidinger, B. H. (2022) Radiology, 2022 Nov 29;222087. <https://doi.org/10.1148/radiol.222087>

NAEOTOM Alpha

Impact of Photon Counting Detector CT Derived Virtual Monoenergetic Images on the Diagnosis of Pulmonary Embolism.

Yalynska, T., Polacin, M., Frauenfelder, T., & Martini, K. (2022). Diagnostics, 12(11), 2715. <https://doi.org/10.3390/diagnostics12112715>

NAEOTOM Alpha

Impact of Photon-counting-detector-CT derived virtual-monoenergetic-images and idone-maps on the diagnosis of pleural empyema.

Jungblut, L., Abel, F., Nakhostin, D., Mergen, V., Sartoretti, T., Euler, A., Frauenfelder, T., Martini, K. (2022). Diagnostic and Interventional Imaging (00), 1–7. <https://doi.org/10.1016/j.diii.2022.09.006>

NAEOTOM Alpha

Potential of Photon-counting Detector CT for Radiation Dose Reduction for the Assessment of Interstitial Lung Disease in Patients With Systemic Sclerosis.

Jungblut, L., Euler, A., von Spiczak, J., Sartoretti, T., Mergen, V., Englmaier, V., Landsmann, A., Mihai, C.-M., Distler, O., Alkadhi, H., Frauenfelder, T., Martini, K. (2022). Investigative Radiology, Publish Ahead of Print (1), 1–7. <https://doi.org/10.1097/rli.0000000000000895>

NAEOTOM Alpha

Dose Reduction and Image Quality in Photon-counting Detector High-resolution Computed Tomography of the Chest: Routine Clinical Data.

Graafen, D., Emrich, T., Halfmann, M. C., Mildenerger, P., Düber, C., Yang, Y., Othman, A. E., O' Doherty, J., Müller, L., Kloeckner, R. (2022). Journal of Thoracic Imaging, 00(00), 1–8. <https://doi.org/10.1097/RTI.0000000000000661>

NAEOTOM Alpha

Low-Dose High-Resolution Photon-counting CT of the Lung: Radiation Dose and Image Quality in the Clinical Routine.

Woeltjen, M. M., Niehoff, J. H., Michael, A. E., Horstmeier, S., Moenninghoff, C., Borggreffe, J., Kroeger, J. R. (2022). Diagnostics, 12(6), 1441. <https://doi.org/10.3390/diagnostics12061441>

NAEOTOM Alpha

Performance of Virtual non-contrast images generated on clinical Photon-counting Detector CT for emphysema quantification : Proof of Concept Performance of Virtual non-contrast images generated on clinical Photon-counting Detector CT for emphysema quantification : Proof of Concept Performance of PCD-CT derived VNC images for emphysema quantification.

Jungblut, L., Sartoretti, T., Kronenberg, D., Mergen, V., Euler, A., Schmidt, B., Alkadhi, H., Frauenfelder, T., Martini, K. (2022). British Journal of Radiology. <https://doi.org/10.1259/bjr.20211367>

NAEOTOM Alpha

Impact of Contrast Enhancement and Virtual Monoenergetic Image Energy Levels on Emphysema Quantification: Experience With Photon-counting Detector Computed Tomography.

Jungblut, L., Kronenberg, D., Mergen, V., Higashigaito, K., Schmidt, B., Euler, A., Alkadhi, H., Frauenfelder, T., Martini, K. (2022). Investigative Radiology, 57(6), 359-365. <https://doi.org/10.1097/RLI.0000000000000848>

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NAEOTOM Alpha

First Performance Evaluation of an Artificial Intelligence-Based Computer-Aided Detection System for Pulmonary Nodule Evaluation in Dual-Source Photon-counting Detector CT at Different Low-Dose Levels.

Jungblut, L., Blüthgen, C., Polacin, M., Messerli, M., Schmidt, B., Euler, A., Alkadhi, H., Frauenfelder, T., Martini, K. (2021). Investigative Radiology, 57(2), 108-114. <https://doi.org/10.1097/rli.0000000000000814>

5. Oncological imaging

2025

NAEOTOM Alpha

Optimization and Initial Diagnostic Performance of Photon-Counting Detector CT for Rectal Cancer T Staging

Zhu, L., Zhang, L., Zhao, Z., Nie, K., Luo, C., Lyu, P., Zhang, Y., and Gao, J.
Radiology. 317(2):e250231 (2025) <https://doi.org/10.1148/radiol.250231>

NAEOTOM Alpha

High Performance of Low/Ultralow-Dose Photon-Counting CT for Pulmonary Metastasis in Young Musculoskeletal Malignancy Patients

Zhou, S., Bao, Q., Dong, H., Li, J., Xu, Z., Du, L., Yang, W., Lu, Y., Zhang, W., Yan, F., and Qin, L.
European Journal of Radiology Open. 15:100689 (2025) <https://doi.org/10.1016/j.ejro.2025.100689>

NAEOTOM Alpha

Enhancing Risk Stratification in Diabetic Gastric Cancer: Muscle-Fat Ratio From Photon-Counting CT as a Predictor of Postoperative Complications

Lin, S., Jin, Y., Xu, M., Wang, S., Yao, W., Wu, J., Wang, X., and Sun, J.
BMC Medical Imaging. 25(1):334 (2025) <https://doi.org/10.1186/s12880-025-01872-1>

NAEOTOM Alpha

Low-Dose Ultrahigh-Resolution PCCT Enhances Subsolid Nodule Characterization

Yan, Q., Yan, F., Lin, Q., Cao, Q., Zhang, Y., Chen, X., Schmidt, B., Xu, Z., and Yang, W.
Radiologia Medica. 130(8):1207–1220 (2025) <https://doi.org/10.1007/s11547-025-02057-0>

NAEOTOM Alpha

Contrast-enhanced photon-counting detector CT for discriminating local recurrence from postoperative changes after resection of pancreatic ductal adenocarcinoma

Alagic, Z., Duran, C.V., Svensson-Marcial, A. et al.
Eur Radiol Exp 9, 26 (2025). <https://doi.org/10.1186/s41747-025-00567-0>

RECOMMENDED

NAEOTOM Alpha

Spectral Differentiation of Hyperdense Non-Vascular and Vascular Renal Lesions Without Solid Components in Contrast-Enhanced Photon-Counting Detector CT Scans—A Pilot Study

Becker, J.; Feitelson, L.-M.; Risch, F.; Canalini, L.; Kaufmann, D.; Wudy, R.; Jehs, B.; Haerting, M.; Wollny, C.; Scheurig-Muenkler, C.; et al.
Diagnostics 2025, 15, 79. <https://doi.org/10.3390/diagnostics15010079>

NAEOTOM Alpha

Breast cancer assessment under neoadjuvant systemic therapy using thoracic photon-counting detector computed tomography in prone position: a pilot study.

Neubauer, C., Nattenmüller, J., Bamberg, F. et al.
Eur Radiol Exp 9, 41 (2025). <https://doi.org/10.1186/s41747-025-00576-z>

NAEOTOM Alpha

Optimal virtual monoenergy for the detection of pancreatic adenocarcinoma during the pancreatic parenchymal phase on photon counting CT.

Ruff, A., Li, X., Goldberg, J.D. et al.
Abdom Radiol (2025). <https://doi.org/10.1007/s00261-024-04696-9>

RECOMMENDED

NAEOTOM Alpha

Simple cystic lesions of the pancreas: image quality and diagnostic accuracy of photon-counting detector computed tomography.

Rau, S., Stein, T., Rau, A. et al.
Radiol med (2025). <https://doi.org/10.1007/s11547-025-02015-w>

RECOMMENDED

NAEOTOM Alpha

Optimal virtual monoenergy for the detection of pancreatic adenocarcinoma during the pancreatic parenchymal phase on photon counting CT.

Ruff, A., Li, X., Goldberg, J. D., Ehrhart, M., Ginocchio, L., Smereka, P., O'Donnell, T., & Dane, B. (2025).

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NAEOTOM Alpha

Advancements in early detection of pancreatic cancer: the role of artificial intelligence and novel imaging techniques.

Huang, C., Shen, Y., Galgano, S. J., Goenka, A. H., Hecht, E. M., Kambadakone, A., Wang, Z. J., & Chu, L. C. (2024). Abdominal Radiology, 0123456789. <https://doi.org/10.1007/s00261-024-04644-7>

NAEOTOM Alpha

Photon-counting detector computed tomography: iodine density versus virtual monoenergetic imaging of pancreatic ductal adenocarcinoma.

Alagic, Z., Valls Duran, C., Suzuki, C., Halldorsson, K., Svensson-Marcial, A., Saeter, R., & Koskinen, S. K. (2024). Abdominal Radiology. <https://doi.org/10.1007/s00261-024-04605-0>

NAEOTOM Alpha

Inter-reader agreement of pancreatic adenocarcinoma resectability assessment with photon counting versus energy integrating detector CT.

Kim, J., Mabud, T., Huang, C., Lloret del Hoyo, J., Petrocelli, R., Vij, A., & Dane, B. (2024). Abdominal Radiology, 0123456789. <https://doi.org/10.1007/s00261-024-04298-5>

NAEOTOM Alpha

Pancreatic cyst prevalence and detection with photon counting CT compared with conventional energy integrating detector CT.

Dane, B., Kim, J., Qian, K., & Megibow, A. (2024). European Journal of Radiology, 175(December 2023), 111437. <https://doi.org/10.1016/j.ejrad.2024.111437>

NAEOTOM Alpha

Diagnostic performance of photon-counting detector CT for differentiation between adrenal adenomas and metastases.

Bette, S., Risch, F., Canalini, L., Becker, J., Leithner, E. V., Huber, A., Haerting, M., Jehs, B., Wollny, C., Schwarz, F., Tehlan, K., Scheurig-Muenkler, C., Wendler, T., Kroencke, T., & Decker, J. A. (2024). European Radiology. <https://doi.org/10.1007/s00330-024-10675-x>

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Value of virtual non-contrast images to identify uncomplicated cystic renal lesions: photon-counting detector CT vs. dual-energy integrating detector CT.

Rau, S., Rau, A., Stein, T., Hagar, M. T., Faby, S., Bamberg, F., & Weiss, J. (2024). Radiologia Medica. <https://doi.org/10.1007/s11547-024-01801-2>

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Photon Counting Computed Tomography in Rectal Cancer: Associations Between Iodine Concentration, Histopathology and Treatment Response: A Pilot Study.

Surov, A., Diallo-Danebrock, R., Radi, A., Kröger, J. R., Niehoff, J. H., Michael, A. E., Gerdes, B., Elhabash, S., Wienke, A., & Borggrefe, J. (2024). Academic Radiology, 1–7. <https://doi.org/10.1016/j.acra.2024.02.006>

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Pancreatic cancer in photon-counting CT: Low keV virtual monoenergetic images improve tumor conspicuity.

Woeltjen, M. M., Niehoff, J. H., Roggel, R., Michael, A. E., Gerdes, B., Surov, A., Borggrefe, J., & Kroeger, J. R. (2024). European Journal of Radiology, 173, 111374. <https://doi.org/10.1016/j.ejrad.2024.111374>

NAEOTOM Alpha

Photon-Counting Detector CT for Liver Lesion Detection — Optimal Virtual Monoenergetic Energy for Different Simulated Patient Sizes and Radiation Doses.

Racine, D., Mergen, V., Viry, A., Frauenfelder, T., Alkadhi, H., Vitzthum, V., & Euler, A. (2024). Investigative Radiology 1–7. <https://doi.org/10.1097/RLI.0000000000001060>

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Optimal conspicuity of pancreatic ductal adenocarcinoma in virtual monochromatic imaging reconstructions on a Photon-counting detector CT: comparison to conventional MDCT.

Decker, J. A., Becker, J., Härtling, M., Jehs, B., Risch, F., Canalini, L., Wollny, C., Scheurig-Muenkler, C., Kroencke, T., Schwarz, F., & Bette, S. (2023). Abdominal Radiology. <https://doi.org/10.1007/s00261-023-04042-5>

NAEOTOM Alpha

Impact of Photon-counting detector computed tomography on image quality and radiation dose in patients with multiple myeloma.

Rau, A., Neubauer, J., Taleb, L., Stein, T., Schuermann, T., Rau, S., Faby, S., Wenger, S., Engelhardt, M., Bamberg, F., & Weiss, J. (2023).

Korean Journal of Radiology, 24, 1–11. <https://doi.org/10.3348/kjr.2023.0211>

NAEOTOM Alpha

Quantum iterative reconstruction on a Photon-counting detector CT improves the quality of hepatocellular carcinoma imaging.

Graafen, D., Stoeher, F., Halfmann, M. C., Emrich, T., Foerster, F., Yang, Y., Düber, C., Müller, L., & Kloeckner, R. (2023).

Cancer Imaging, 23(1), 1–10. <https://doi.org/10.1186/s40644-023-00592-5>

NAEOTOM Alpha

Anemia detection and quantification in contrast-enhanced CT scans on a novel Photon-counting detector CT: A prospective proof-of-concept study

Decker, J. A., Huber, A., Senel, F., Risch, F., Bette, S., Braun, F., Becker, J., Popp, D., Haerting, M., Jehs, B., Rippel, K., Wollny, C., Scheurig-muenkler, C., Kroencke, T. J., & Schwarz, F. (2023).

European Journal of Radiology. 166, 110967. <https://doi.org/10.1016/j.ejrad.2023.110967>.

NAEOTOM Alpha

Photon counting detector CT: a new frontier of myeloma bone disease evaluation.

Cook J., Rajendran K., Ferrero A., Dhillon P., Kumar S., Baffour, F. (2023)

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Soft reconstruction kernels improve HCC imaging on a Photon-counting detector CT.

Graafen, D., Müller, L., Halfmann, M. C., Stoeher, F., Foerster, F., Düber, C., Yang, Y., Emrich, T., & Kloeckner, R. (2023).

Academic Radiology, 3, 1–12. <https://doi.org/10.1016/j.acra.2023.03.026>

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Evaluation of radiomics feature stability in abdominal monoenergetic photon counting CT reconstructions.

Tharmaseelan, H., Rotkopf, L. T., Ayx, I., Hertel, A., Nörenberg, D., Schoenberg, S. O., & Froelich, M. F. (2022).

Scientific Reports, 1–12. <https://doi.org/10.1038/s41598-022-22877-8>

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Myeloma bone disease imaging on a 1st-generation clinical Photon-counting detector CT vs. 2nd-generation dual-source dual-energy CT.

Winkelmann, M. T., Hagen, F., Le-Yannou, L., Weiss, J., Riffel, P., Gutjahr, R., Faby, S., Nikolaou, K., & Horger, M. (2022).

European Radiology. <https://doi.org/10.1007/s00330-022-09225-0>

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Prospective Multireader Evaluation of Photon-counting CT for Multiple Myeloma Screening.

Schwartz, F. R., Vinson, E. N., Spritzer, C. E., Colglazier, R., Samei, E., French, R. J., Said, N., Waldman, L., & McCrum, E. (2022).

Radiology. Imaging Cancer, 4(6), e220073. <https://doi.org/10.1148/rycan.220073>

NAEOTOM Alpha

Photon-counting Detector CT with Deep Learning Noise Reduction to Detect Multiple Myeloma.

Baffour, F. I., Huber, N. R., Ferrero, A., Rajendran, K., Glazebrook, K. N., Larson, N. B., Kumar, S., Cook, J. M., Leng, S., Shanblatt, E. R., McCollough, C. H., Fletcher, J. G. (2022).

Radiology, 1-8. <https://doi.org/10.1148/radiol.220311>

NAEOTOM Alpha

Photon-counting detector CT improves quality of arterial phase abdominal scans: A head-to-head comparison with energy-integrating CT.

Graafen, D., Müller, L., Halfmann, M., Düber, C., Hahn, F., Yang, Y., Emrich, T., Kloeckner, R. (2022).

European Journal of Radiology, 156, 110514. <https://doi.org/10.1016/j.ejrad.2022.110514>

NAEOTOM Alpha

Photon-counting Detector CT with Quantum Iterative Reconstruction. Impact on liver lesion detection and radiation dose reduction.

Racine, D., Mergen, V., Viry, A., Eberhard, M., Becce, F., Rotzinger, D. C., Alkadhi, H., Euler, A. (2022).

Investigative Radiology, 1–8. <https://doi.org/10.1097/RLI.0000000000000925>

NAEOTOM Alpha

Anemia Detection by Hemoglobin Quantification on Contrast-enhanced Photon-counting CT Data Sets.

Decker, J. A., Huber, A., Senel, F., Bette, S., Braun, F., Risch, F., Woznicki, P., Becker, J., Popp, D., Haerting, M., Jehs, B., Rippel, K., Wollny, C., Scheurig-Muenkler, C., Korenke, T., Schwarz, F. (2022)

Radiology 1-3, 77–79. <https://doi.org/10.1148/radiol.220063>

NAEOTOM Alpha

Radiation Dose Reduction in Contrast-Enhanced Abdominal CT: Comparison of Photon-counting Detector CT with 2nd Generation Dual-Source Dual-Energy CT in an oncologic cohort.

Wrazidlo, R., Walder, L., Estler, A., Gutjahr, R., Schmidt, B., Faby, S., Fritz, J., Nikolaou, K., Horger, M., Hagen, F. (2022). Academic Radiology, 1–8. <https://doi.org/10.1016/j.acra.2022.05.021>

NAEOTOM Alpha

Optimal Conspicuity of Liver Metastases in Virtual Monochromatic Imaging Reconstructions on a Novel Photon-counting Detector CT—Effect of keV Settings and BMI.

Bette, S., Decker, J. A., Braun, F. M., Becker, J., Haerting, M., Haeckel, T., Gebhard, M., Risch, F., Woźnicki, P., Scheurig-Muenkler, C., Kroencke, T. J., Schwarz, F. (2022). Diagnostics, 12(5), 1231. <https://doi.org/10.3390/diagnostics12051231>

NAEOTOM Alpha

Liver Iodine Quantification With Photon-counting Detector CT: Accuracy in an Abdominal Phantom and Feasibility in Patients.

Sartoretti, T., Mergen, V., Jungblut, L., Alkadhi, H., Euler, A. (2022). Academic Radiology, 1–9. <https://doi.org/10.1016/j.acra.2022.04.021>

NAEOTOM Alpha

Image Quality and Radiation Dose of Contrast-Enhanced Chest-CT Acquired on a Clinical Photon-counting Detector CT vs. Second-Generation Dual-Source CT in an Oncologic Cohort : Preliminary Results.

Hagen, F., Walder, L., Fritz, J., Gutjahr, R., Schmidt, B., Faby, S., Bamberg, F., Schoenberg, S., Nikolaou, K., Horger, M. (2022). Tomography 2022, 8(3), 1466–1476. <https://doi.org/10.3390/tomography8030119>

6. Neurovascular, neurological, head and neck imaging

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NAEOTOM Alpha

Neuroimaging With Photon-Counting Computed Tomography: A Review of Clinical Applications

Perera Molligoda Arachchige, A.S., Alves, G.A.M., Fedorov, D., Ressa, G., Cappellini, L., Levi, R., Savini, G., Catapano, F., Francone, M., and Politi, L.S. World Journal of Radiology. 17(11):113701 (2025) <https://doi.org/10.4329/wjr.v17.i11.113701>

NAEOTOM Alpha

Advancements in Monitoring Paranasal Sinuses Among People With Cystic Fibrosis Using Photon-Counting CT

Frings, M., Kocak, A., Sutharsan, S., Forsting, M., Taube, C., Opitz, M., and Welsner, M. Acta Radiologica. (2025) <https://doi.org/10.1177/02841851251396564>

NAEOTOM Alpha

Photon Counting Detector CT Angiography for Localization of the Artery of Adamkiewicz

Madhavan, A.A., Kranz, P.G., Kodet, M.L., Bathla, G., Lehman, V.T., Diehn, F.E., Mark, I.T., Yu, L., and Amrhein, T.J. AJNR American Journal of Neuroradiology. (2025) <https://doi.org/10.3174/ajnr.A9113>

NAEOTOM Alpha

Effective Visualization of the Intracranially Implanted Neurosurgical Devices With Photon-Counting Detector Computed Tomography: A Technical Note

Tominaga, T., Yokoyama, T., Nakamura, S., Morisawa, H., Hoshino, T., Kawamata, T., and Miura, N. Journal of Medical Investigation. 72(3–4):463–466 (2025) <https://doi.org/10.2152/jmi.72.463>

NAEOTOM Alpha

Photon-Counting Computed Tomography of the Paranasal Sinuses Improves Intraoperative Accuracy of Image-Guided Surgery

Ernst, B.P., Burck, I., Schliwa, S., Becker, S., Albrecht, T., Vogl, T.J., Scholtz, J.E., Levi, A., Loth, A.G., Bärhold, F., Strieth, S., Froelich, M.F., Hertel, A., Layer, Y.C., Kuetting, D., and Eckrich, J. Diagnostics (Basel). 15(21):2777 (2025) <https://doi.org/10.3390/diagnostics15212777>

NAEOTOM Alpha

Photon-Counting CT Angiography Unmasks Subtle Carotid Webs

Marnat, G., Eker, O., Cochet, H., Olindo, S., and Tourdias, T. Stroke. 56(11):e342–e343 (2025) <https://doi.org/10.1161/STROKEAHA.125.052972>

NAEOTOM Alpha**Postoperative Assessment of Fracture Reduction and Osteosynthesis Materials Using Photon-Counting Detector CT in Maxillofacial Trauma – A Pilot Study**

Al-Haj Husain, A., Mergen, V., Sandhu, S., Wagner, M.E.H., Demmert, T.T., Alkadhi, H., Burian, E., Flohr, T., Stadlinger, B., Kessler, P., Lie, S.A.N., and Essig, H.

Oral and Maxillofacial Surgery. 29(1):171 (2025) <https://doi.org/10.1007/s10006-025-01470-z>

NAEOTOM Alpha**Rapid Diagnosis of Cauda Equina Syndrome: A Prospective Study Comparing Photon-Counting CT With MRI**

Szum, A., Granberg, T., Fagerlund, M., Lange, C., Junglander, P., Sadus, T., Lundberg, J., and Skorpil, M.

Journal of Computer Assisted Tomography. 50(1):54–59 (2026) <https://doi.org/10.1097/RCT.0000000000001801>

NAEOTOM Alpha**Photon-Counting Detector CT Angiography to Evaluate Carotid and Subclavian Artery Stents and Compared to Ultrasound and Angiography – An In-Vivo Study With Spectral Reconstructions**

De Beukelaer, F., Wuyts, L.L., van Hedent, S., Nikoubashman, O., Kantzeli, I., Wiesmann, M., Reich, A., Pinho, J., Ridwan, H., and Weyland, C.S.

Interventional Neuroradiology. (2025) <https://doi.org/10.1177/15910199251374274>

NAEOTOM Alpha**Reduction of Radiation Dose and Contrast Medium Volume in Photon-Counting Detector Computed Tomography Head and Neck Angiography: A Comparison to Energy-Integrating Detector Computed Tomography**

Zhang, M., Nie, K., Yuan, D., Zhang, Y., Qi, K., Zhang, W., Gu, Y., Chen, Y., Gao, J., and Liu, J.

Academic Radiology. 32(10):6080–6092 (2025) <https://doi.org/10.1016/j.acra.2025.07.020>

NAEOTOM Alpha**In Vivo Discrimination of Iodine and Tantalum-Based Liquid Embolics After Intracranial or Spinal Embolization Using Photon-Counting Detector CT.**

Maurer, C.J., Berlis, A., Stangl, F.J. et al.

Clin Neuroradiol (2025). <https://doi.org/10.1007/s00062-025-01502-x>

RECOMMENDED**NAEOTOM Alpha****Potential for Radiation Dose Reduction in Temporal Bone CT Imaging Using Photon-Counting Detector CT**

Fumiyo Higakia, Yusuke Morimitsu, Toshihiro Iguchic, Sung Il Hwangd, Takahiro Kitayamaa, Yuka Takahashia, Mayu Ukaa, Noriaki Akagib, Akiko Sugayae, Toshiharu Mitsuhashif, Yusuke Matsug, and Takao Hirakig

Acta Med. Okayama, 2025 Vol. 79, No. 2, pp. 75-80. <http://doi.org/10.18926/AMO/68645>

NAEOTOM Alpha**Influence of tube voltage on image quality in non-contrast photon-counting computed tomography of the head: Comparison of 120 kVp and 140 kVp.**

Schoenbeck D, Kroeger JR, Woeltjen MM, et al.

The Neuroradiology Journal. 2025;0(0). <https://doi.org/10.1177/19714009251339079>

NAEOTOM Alpha**Assessing anemia in stroke patients through virtual non-contrast imaging with photon-counting detector CT: validation on supra-aortic vessel CT-Angiography**

Quint, G., Decker, J., Cortes, A. et al.

Neuroradiology (2025). <https://doi.org/10.1007/s00234-025-03620-2>

NAEOTOM Alpha**Pre- and Postoperative Imaging of Cochlear Implantation in Cadaveric Specimens Using Low-Dose Photon-Counting Detector CT**

Bjoern Spahn, Franz-Tassilo Müller-Graff, Kristen Rak, Jonas Engert, Johannes Voelker, Stephan Hackenberg, Rudolf Hagen, Tilmann Neun, Bernhard Petritsch, Thorsten Alexander Bley, Jan-Peter Grunz, Henner Huflage.

American Journal of Neuroradiology Feb 2025, 46 (2) 362-371; <https://doi.org/10.3174/ajnr.A8533>

NAEOTOM Alpha**Photon-counting detector CTA to assess intracranial stents and flow diverters: an in vivo study with ultrahigh-resolution spectral reconstructions**

De Beukelaer, F., De Beukelaer, S., Wuyts, L.L. et al.

Eur Radiol Exp 9, 10 (2025). <https://doi.org/10.1186/s41747-025-00550-9>

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NAEOTOM Alpha**Increased diagnostic accuracy and better morphology characterization of unruptured intracranial aneurysm by ultra-high-resolution photon-counting detector CT angiography**

RECOMMENDED

He N, Lyu H, Zhang Y, et al.

Journal of NeuroInterventional Surgery Published Online First: 04 April 2025. <https://doi.org/10.1136/jnis-2025-023094>**NAEOTOM Alpha****Photon-counting CT imaging of a patient with coiled and untreated intracranial saccular aneurysms**

Tóth A, Cho JY, Wilson E, O'Doherty J, Spampinato MV.

The Neuroradiology Journal. 2025;0(0). <https://doi.org/10.1177/19714009251313514>**NAEOTOM Alpha****Delineation of the brachial plexus by contrast-enhanced photon-counting detector CT and virtual monoenergetic images**

Nakashima, Masahiro et al.

European Journal of Radiology, Volume 184, 111964. (2025) <https://doi.org/10.1016/j.ejrad.2025.111964>**NAEOTOM Alpha****Intracranial Calcification Detection; a Comparison Between Micro-CT, Conventional CT and Ultra-high-resolution Photon-Counting Detector CT**

van der Bie, Judith et al.

Academic Radiology, Volume 32, Issue 6, 3599 – 3607 (2025). <https://doi.org/10.1016/j.acra.2025.01.028>**NAEOTOM Alpha****Deep Learning Based Detection of Large Vessel Occlusions in Acute Ischemic Stroke Using High-Resolution Photon Counting Computed Tomography and Conventional Multidetector Computed Tomography.**

RECOMMENDED

Boriesosdick, J., Shahzadi, I., Xie, L. et al.

Clin Neuroradiol 35, 185–195 (2025). <https://doi.org/10.1007/s00062-024-01471-7>**NAEOTOM Alpha****Improved visualization of the inferior tympanic and mastoid canaliculi with photon counting detector CT**

James P. McDonald, Paul J. Farnsworth, Norbert G. Campeau, Shuai Leng, Matthew L. Carlson, John C. Benson, Ian T. Mark, John I. Lane,

American Journal of Otolaryngology, Volume 46, Issue 1, 2025, 104585, ISSN 0196-0709,

<https://doi.org/10.1016/j.amjoto.2024.104585>**NAEOTOM Alpha****Use of Photon-Counting Detector Computed Tomography (PCD-CT) in a Revision Cochlear Implant.**

Rist, T. M., Holder, J. T., & Labadie, R. F. (2025).

Otology Neurotology. <https://doi.org/10.1097/MAO.0000000000004411>**NAEOTOM Alpha****CT-Guided Epidural Contrast Injection for the Identification of Dural Defects.**

Mark, I. T., Oien, M., Benson, J., Verdoorn, J., Johnson-tesch, B., Kim, D. K., Cutsforth-gregory, J., Madhavan, A. A., Mark, I. T., Oien, M., Benson, J., Verdoorn, J., Johnson-tesch, B., Kim, D. K., Cutsforth-gregory, J., & Madhavan, A. A. (2025).

46(1), 207–210.

AJNR Am J Neuroradiol 2025, 46 (1) 207-210 doi: <https://doi.org/10.3174/ajnr.A8437>**NAEOTOM Alpha****Pre- and Postoperative Imaging of Cochlear Implantation in Cadaveric Specimens Using Low-Dose Photon-Counting Detector CT.**

Spahn, B., Rak, K., Engert, J., Voelker, J., Hackenberg, S., Hagen, R., Neun, T., Petritsch, B., Bley, A., Grunz, J., Huflage, H.

AJNR Am J Neuroradiol (2025). <https://doi.org/10.3174/ajnr.A8533>**2024****NAEOTOM Alpha****Improved visualization of the inferior tympanic and mastoid canaliculi with photon counting detector CT.**

Tang, Y., Yan, Y., Mao, J., Ni, J., & Qing, H. (2023).

American Journal of Otolaryngology, 101865. <https://doi.org/10.1016/j.amjoto.2024.104585>**NAEOTOM Alpha****Deep Learning Based Detection of Large Vessel Occlusions in Acute Ischemic Stroke Using High-Resolution Photon Counting Computed Tomography and Conventional Multidetector Computed Tomography.**

Boriesosdick, J., Shahzadi, I., Xie, L., Georgescu, B., Gibson, E., Frohwein, L. J., Saeed, S., Haag, N. P., Horstmeier, S., Moenninghoff, C., Niehoff, J. H., Surov, A., Borggrefe, J., & Kroeger, J. R. (2024).

Clinical Neuroradiology. <https://doi.org/10.1007/s00062-024-01471-7>

NAEOTOM Alpha

Visibility of Intracranial Perforating Arteries Using Ultra-High-Resolution Photon-Counting Detector Computed Tomography (CT) Angiography.

Okazaki, T., Niwa, T., Yoshida, R., Sorimachi, T., & Hashimoto, J. (2024).
Tomography 2024, 10, 1867–1880. <https://doi.org/10.3390/tomography10120136>

NAEOTOM Alpha

Establishing a Foundation for the In Vivo Visualization of Intravascular Blood with Photon-Counting Technology in Spectral Imaging in Cranial CT.

Klempka, A., Neumayer, P., Schröder, A., Ackermann, E., Hetjens, S., Clausen, S., & Groden, C. (2024).
Diagnostics, 14(14), 1–9. <https://doi.org/10.3390/diagnostics14141561>

NAEOTOM Alpha

Ultra-High-Resolution Photon-Counting-Detector CT with a Dedicated Denoising Convolutional Neural Network for Enhanced Temporal Bone Imaging.

Chang, S., Benson, J. C., Lane, J. I., Bruesewitz, M. R., Swicklik, J. R., Thorne, J. E., Koons, E. K., Carlson, M. L., Mccollough, C. H., & Leng, S. (2024).
AJNR Am J Neuroradiol 2024 <https://doi.org/10.3174/ajnr.A8572>

NAEOTOM Alpha

Evaluation of Intracranial Fusiform Aneurysm After Flow Diverter Treatment at Photon-Counting CT.

Wei, J., Zhang, J., & Li, X. (2024).
Stroke, December 2024, 1–2. <https://doi.org/10.1161/STROKEAHA.124.049448>

NAEOTOM Alpha

Myelographic Techniques for the Localization of Cerebrospinal Fluid Leaks.

Madhavan, A. A., Shah, V., Brinjikji, W., & Cutsforth-Gregory, J. K. (2024).
Neuroimaging Clinics of North America, 35(1), 133–142. <https://doi.org/10.1016/j.nic.2024.08.005>

NAEOTOM Alpha

Causes of Intracranial Hypotension: Spontaneous, Traumatic, and Iatrogenic Cerebrospinal Fluid Leaks.

Cutsforth-Gregory, J. K., Steel, S. J., Schievink, W. I., & Madhavan, A. A. (2024).
Neuroimaging Clinics of North America, 35(1), 123–132. <https://doi.org/10.1016/j.nic.2024.08.004>

NAEOTOM Alpha

Dural Arteriovenous Fistula at Photon-Counting CT Angiography.

Tang, W. T., & Zhao, Y. E. (2024).
Radiology, 313(1), 1–2. <https://doi.org/10.1148/radiol.240954>

NAEOTOM Alpha

Three-Dimensional Reconstruction of a Malleus Handle Fracture Using Photon-Counting CT.

Shi, J. J., Fujiwara, R. J. T., Pinho, M. C., & Isaacson, B. (2024).
Otolaryngology and Neurotology, 2–4. <https://doi.org/10.1097/MAO.0000000000004343>

NAEOTOM Alpha

Ultra-high-resolution photon-counting detector CT for visualization of the brachial plexus.

Nakashima, M., Kawai, T., Matsumoto, K., Kawaguchi, T., Urano, M., Kitera, N., Itoh, T., & Hiwatashi, A. (2024).
European Journal of Radiology, 181, 111810. <https://doi.org/10.1016/j.ejrad.2024.111810>

NAEOTOM Alpha

Direct visualization of microwires in hybrid depth electrodes using high-resolution photon-counting CT.

Smeijers, S., Coudyzer, W., Keirse, E., Bougou, V., Decramer, T., & Theys, T. (2024).
Epilepsia Open, June, 1–4. <https://doi.org/10.1002/epi4.13080>

NAEOTOM Alpha

High resolution CT angiography for the assessment of intracranial stents and flow diverters using photon counting detector CT.

Ludovichetti, R., Gorup, D., Krepuska, M., Winklhofer, S., Thurner, P., Madjidyar, J., Flohr, T., Piccirelli, M., Michels, L., Alkadhi, H., Mergen, V., Kulcsar, Z., & Schubert, T. (2024).
J. Neurointervent. Surg. 1–7. <https://doi.org/10.1136/jnis-2024-022041>

NAEOTOM Alpha

Carotid artery assessment in dual - source photon - counting CT : impact of low - energy virtual monoenergetic imaging on image quality , vascular contrast and diagnostic assessability.

Booz, C., Bucolo, G. M., Angelo, T. D., Mazziotti, S., & Lanzafame, L. R. M. (2024).
La Radiologia Medica, 0123456789. <https://doi.org/10.1007/s11547-024-01889-6>

NAEOTOM Alpha

Ultra-High-Resolution Temporal Bone Anatomy Using Photon-counting CT : Added Value of Improved Spatial Resolution.

Ansari, S., & Gaddikeri, S. (2024).
Radiographics 2024. 44(10):e240028 <https://doi.org/10.1148/rq.240028>

NAEOTOM Alpha

Cranial and spinal computed tomography (CT) angiography with photon - counting detector CT : comparison with angiographic and operative findings.

Higaki, F., Hiramatsu, M., Yasuhara, T., Sasada, S., Otani, Y., & Haruma, J. (2024). Japanese Journal of Radiology. <https://doi.org/10.1007/s11604-024-01661-w>

NAEOTOM Alpha

Spinal CSF Leaks : The Neuroradiologist Transforming Care Spinal CSF Leaks : The Neuroradiologist Transforming Care.

Mamlouk, M. D., Callen, A. L., Madhavan, A. A., Lützen, N., Jones, L. C., Mark, I. T., Benson, J. C., Verdoorn, J. T., Kim, D. K., Amrhein, T. J., Gray, L., Dillon, W. P., Maya, M., Huynh, T. J., Shah, V. N., Dobrocky, T., Piechowiak, E. I., Chazen, J. L., Malinzak, M. D., ... Kranz, P. G. (2024). AJNR. <https://doi.org/10.3174/ajnr.A8484>

NAEOTOM Alpha

High-Resolution Head CTA : A Prospective Patient Study and Energy-Integrating Detector CT.

Diehn, F. E., Zhou, Z., Thorne, J. E., Campeau, N. G., Nagelschneider, A. A., Laurence, J., Benson, J. C., Madhavan, A. A., Bathla, G., Lehman, V. T., Huber, N. R., Baffour, F., Fletcher, G., Mccollough, C. H., Yu, L., Diehn, F. E., Zhou, Z., Thorne, J. E., Campeau, N. G., ... Yu, L. (2024). AJNR. <https://doi.org/10.3174/ajnr.A8342>

NAEOTOM Alpha

Optimizing Photon-Counting Detector CT for Imaging Intracranial Aneurysms.

Rajendran, K., & Madhavan, A. A. (2024). American Journal of Neuroradiology, August, 8–11. <https://doi.org/10.3174/ajnr.a8400>

NAEOTOM Alpha

Myelographic Techniques for the Localization of CSF-Venous Fistulas: Updates in 2024.

Madhavan, A. A., Brinjikji, W., Cutsforth-Gregory, J. K., Amrhein, T. J., Kranz, P. G., Benson, J. C., Diehn, F. E., Johnson-Tesch, B. A., Liebo, G. B., Lehman, V. T., Mark, I. T., Morris, P. P., Oien, M. P., Shlapak, D. P., & Verdoorn, J. T. (2024). American Journal of Neuroradiology, August. <https://doi.org/10.3174/ajnr.a8299>

NAEOTOM Alpha

Establishing a Foundation for the In Vivo Visualization of Intravascular Blood with Photon-Counting Technology in Spectral Imaging in Cranial CT. Diagnostics,

Klempka, A., Neumayer, P., Schröder, A., Ackermann, E., Hetjens, S., Clausen, S., & Groden, C. (2024). 14(14), 1561. <https://doi.org/10.3390/diagnostics14141561>

NAEOTOM Alpha

Photon-Counting CT in the Head and Neck: Current Applications and Future Prospects.

Benson, J. C., Campeau, N. G., Diehn, F. E., Lane, J. I., Leng, S., & Moonis, G. (2024). American Journal of Neuroradiology, July. <https://doi.org/10.3174/ajnr.a8265>

NAEOTOM Alpha

Comprehensive Review of Inner Ear Anatomy on Photon Counting CT.

Rao, D., Murray, J. V., Agarwal, A. K., Sandhu, S. J., & Rhyner, P. A. (2024). American Journal of Neuroradiology, July, ajnr.A8410. <https://doi.org/10.3174/ajnr.a8410>

NAEOTOM Alpha

The Photon-Counting CT Enters the Field of Cochlear Implantation: Comparison to Angiography DynaCT and Conventional Multislice CT.

Rak, K., Spahn, B., Müller-Graff, F. T., Engert, J., Voelker, J., Hackenberg, S., Hagen, R., Petritsch, B., Grunz, J. P., Bley, T., Neun, T., & Huflage, H. (2024). Otology and Neurotology, 45(6), 662–670. <https://doi.org/10.1097/MAO.0000000000004221>

NAEOTOM Alpha

Cranial Computer Tomography with Photon Counting and Energy-Integrated Detectors: Objective Comparison in the Same Patients.

Klempka, A., Schröder, A., Neumayer, P., Groden, C., Clausen, S., & Hetjens, S. (2024). Diagnostics, 14(10), 1019. <https://doi.org/10.3390/diagnostics14101019>

NAEOTOM Alpha

Neurovascular Imaging with Ultra-High-Resolution Photon-Counting CT: Preliminary Findings on Image Quality Evaluation.

Tóth, A., Chetta, J. A., Yazdani, M., Matheus, M. G., Doherty, J. O. ', Tipnis, S. V., & Spampinato, M. V. (2024). American Journal of Neuroradiology, May, ajnr.A8350. <https://doi.org/10.3174/ajnr.a8350>

NAEOTOM Alpha

Advanced Imaging of Shunt Valves in Cranial CT Scans with Photon-Counting Scanner.

Klempka, A., Ackermann, E., Brehmer, S., Clausen, S., & Groden, C. (2024). Tomography, 10(5), 654–659. <https://doi.org/10.3390/tomography10050050>

NAEOTOM Alpha

Ultra-High Spatial Resolution Images of the Temporal Bone Obtained With a Newly Released Photon-Counting Detector Computed Tomography.

Sakaida, H., Ichikawa, Y., Yamazaki, A., Sakuma, H., & Takeuchi, K. (2024).
Ear, Nose and Throat Journal, 4–6. <https://doi.org/10.1177/01455613241235551>

NAEOTOM Alpha

Comparison of Image Quality and Radiation Dose in Pediatric Temporal Bone CT using Photon Counting Detectors CT and Energy Integrating Detectors CT Comparison of Image Quality and Radiation Dose in Pediatric Temporal Bone CT using Photon Counting Detector.

Lee, J. S., Kim, J., & Bapuraj, J. R. (2024).
American Journal of Neuroradiology. <https://doi.org/10.3174/ajnr.A8276>

NAEOTOM Alpha

Benefits of Photon-Counting CT Myelography for Localization of Dural Tears in Spontaneous Intracranial Hypotension.

Madhavan, A. A., Cutsforth-Gregory, J. K., Brinjikji, W., Benson, J. C., Johnson-Tesch, B. A., Liebo, G. B., Mark, I. T., Oien, M. P., Shlapak, D. P., Yu, L., & Verdoorn, J. T. (2024).
American Journal of Neuroradiology, March. <https://doi.org/10.3174/ajnr.a8179>

NAEOTOM Alpha

Imaging of hypodense gliotic lesions in photon counting computed tomography using virtual monoenergetic images.

Schoenbeck, D., Sacha, A., Niehoff, J. H., Moenninghoff, C., Borggreffe, J., Kroeger, J. R., & Michael, A. E. (2024).
Neuroradiology Journal, 0(0), 1–6. <https://doi.org/10.1177/19714009241240056>

NAEOTOM Alpha

Photon Counting Computed Tomography for Accurate Cribiform Plate (Lamina Cribrosa) Imaging in Adult Patients.

Klempka, A., Ackermann, E., & Clausen, S. (2024).
Tomography 10, 400–414 <https://doi.org/10.3390/%20tomography10030031>

NAEOTOM Alpha

Imaging of intracranial hemorrhage in photon counting computed tomography using virtual monoenergetic images.

Schoenbeck, D., Sacha, A., Niehoff, J. H., Moenninghoff, C., Borggreffe, J., Horstmeier, S., Surov, A., Shahzadi, I., & Knappe, U. (2024).
Neuroradiology, 0123456789. <https://doi.org/10.1007/s00234-024-03308-z>

NAEOTOM Alpha

The Small Pixel Effect in Ultra-High-Resolution Photon-Counting CT of the Lumbar Spine.

Huflage, H., Hendel, R., Woznicki, P., Conrads, N., Feldle, P., Patzer, T. S., Ergün, S., Bley, T. A., Kunz, A. S., & Grunz, J.-P. (2024).
Investigative Radiology, 1–6. <https://doi.org/10.1097/rli.0000000000001069>

NAEOTOM Alpha

Back to the Future: Dynamic Contrast-Enhanced Photon-Counting Detector CT for the Detection of Pituitary Adenoma in Cushing Disease.

Mark, I. T., Van Gompel, J., Bancos, I., Nagelschneider, A. A., Johnson, D. R., Bathla, G., Madhavan, A. A., Weber, N. M., & Yu, L. (2024).
American Journal of Neuroradiology, January, 1–5. <https://doi.org/10.3174/ajnr.a8171>

NAEOTOM Alpha

Photon-Counting Detector CT Angiography in Cervical Artery Dissection.

Keser, Z., Diehn, F. E., & Lanzino, G. (2024).
Stroke, 55(3), E48–E49. <https://doi.org/10.1161/STROKEAHA.123.046174>

NAEOTOM Alpha

Ultra-low-dose photon-counting CT of paranasal sinus: an in vivo comparison of radiation dose and image quality to cone-beam CT.

Kaatsch, H. L., Fulisch, F., Dillinger, D., Kubitschek, L., Becker, B. V., Piechotka, J., Brockmann, M. A., Froelich, M. F., Schoenberg, S. O., Overhoff, D., & Waldeck, S. (2024).
Dento Maxillo Facial Radiology, 53(2), 103–108. <https://doi.org/10.1093/dmfr/twad010>

NAEOTOM Alpha

Myelography Using Energy-Integrating Detector CT Versus Photon-Counting Detector CT for Detection of CSF-Venous Fistulas in Patients With Spontaneous Intracranial Hypotension.

Schwartz, F. R., Kranz, P. G., Malinzak, M. D., Cox, D. N., Ria, F., McCabe, C., Harrawood, B., Leithe, L. G., Samei, E., & Amrhein, T. J. (2024).
American Journal of Roentgenology, 222(4). <https://doi.org/10.2214/AJR.23.30673>

NAEOTOM Alpha

Atherosclerotic plaque features relevant to rupture-risk detected by clinical photon-counting CT ex vivo: a proof-of-concept study.

Shami, A., Sun, J., Gialeli, C., Markstad, H., Edsfieldt, A., Aurumskjöld, M. L., & Gonçalves, I. (2024). *European Radiology Experimental*, 8(1). <https://doi.org/10.1186/s41747-023-00410-4>

NAEOTOM Alpha

Image quality of photon-counting detector CT virtual monoenergetic and polyenergetic reconstructions for head and neck CT angiography.

Spampinato, M. V., Rodgers, J., McGill, L. J., Schoepf, J., & Doherty, J. O. (2024). *Clinical Imaging*, <https://doi.org/10.1016/j.clinimaq.2024.110081>

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NAEOTOM Alpha

Discrimination of Hemorrhage and Contrast Media in a Head Phantom on Photon-Counting Detector CT Data.

Risch, F., Berlis, A., Kroencke, T., Schwarz, F., & Maurer, C. J. (2023). *American Journal of Neuroradiology*. <https://doi.org/10.3174/ajnr.a8093>

NAEOTOM Alpha

Diagnostic Performance of Decubitus Photon-counting Detector CT Myelography for the Detection of CSF-Venous Fistulas.

Madhavan, A. A., Cutsforth-Gregory, J. K., Brinjikji, W., Bathla, G., Benson, J. C., Diehn, F. E., Eckel, L. J., Mark, I. T., Morris, P. P., Payne, M. A., Verdoorn, J. T., Weber, N. M., Yu, L., Baffour, F., Fletcher, J. G., & McCollough, C. H. (2023). *American Journal of Neuroradiology*, November. <https://doi.org/10.3174/ajnr.a8040>

NAEOTOM Alpha

Impact of different metal artifact reduction techniques in Photon-counting computed tomography head and neck scans in patients with dental hardware.

Pallasch, F. B., Rau, A., Reiser, M., Rau, S., Diallo, T., Stein, T., Faby, S., Bamberg, F., & Weiss, J. (2023). *European Radiology*. <https://doi.org/10.1007/s00330-023-10430-8>

NAEOTOM Alpha

High resolution photon counting CT permits direct visualisation of directional deep brain stimulation lead segments and markers.

Manfield, J., Thomas, S., Antoniadis, C., Green, A. L., & FitzGerald, J. J. (2023). *Brain Stimulation*, 16(5), 1276–1277. <https://doi.org/10.1016/j.brs.2023.08.015>

NAEOTOM Alpha

Evaluation of the ear ossicles with Photon-counting detector CT.

Takahashi, Y., Higaki, F., Sugaya, A., Asano, Y., Kojima, K., Morimitsu, Y., Akagi, N., Itoh, T., Matsui, Y., & Hiraki, T. (2023). *Japanese Journal of Radiology*, 2–8. <https://doi.org/10.1007/s11604-023-01485-0>

NAEOTOM Alpha

Photon-counting CT allows better visualization of temporal bone structures in comparison with current generation multi-detector CT.

Hermans, R., Boomgaert, L., Cockmartin, L., Binst, J., De Stefanis, R., & Bosmans, H. (2023). *Insights into Imaging*, 14(1), 112. <https://doi.org/10.1186/s13244-023-01467-w>

NAEOTOM Alpha

High-resolution computer tomography angiography of the orbit using a Photon-counting computer tomography scanner.

Farnsworth, P. J., Campeau, N. G., Diehn, F. E., Yu, L., Leng, S., Zhou, Z., Fletcher, J. G., & McCollough, C. H. (2023). *Interventional Neuroradiology*. <https://doi.org/10.1177/15910199231175198>

NAEOTOM Alpha

High spatial-resolution skull base imaging with Photon-counting computed tomography and energy-Inregrating computed tomography – A comparative phantom study.

Rajagopal, J. R., Schwartz, F. R., Solomon, J. B., Enterline, D. S., & Samei, E. (2023). *Journal of Computed Assist. Tomography*, 1–8. <https://doi.org/10.1097/RCT.0000000000001464>

NAEOTOM Alpha

Combining virtual monoenergetic imaging and iterative metal artifact reduction in first-generation Photon-counting computed tomography of patients with dental implants.

Patzer, T. S., Kunz, A. S., Huflage, H., Gruschwitz, P., Pannenbecker, P., Afat, S., Herrmann, J., Petritsch, B., Bley, T. A., & Grunz, J. P. (2023). *European Radiology*, <https://doi.org/10.1007/s00330-023-09790-y>

NAEOTOM Alpha

Dual Source Photon-counting Computed Tomography — Part II : Clinical Overview of Neurovascular Applications.

Cademartiri, F., Meloni, A., Pistoia, L., Degiorgi, G., Clemente, A., Gori, C. De, Positano, V., Celi, S., Berti, S., Emdin, M., Panetta, D., Menichetti, L., Punzo, B., Cavaliere, C., Bossone, E., Saba, L., Cau, R., Grutta, L. La, & Maffei, E. (2023). *J. Clin. Med.* 2023, 12, 3626. <https://doi.org/10.3390/jcm12113626>

NAEOTOM Alpha

Utility of Photon-counting detector CT myelography for the detection of CSF-Venous fistulas.

Madhavan, A.A., Yu, L., Brinjikji, W., Cutsforth-Gregory, J.K., Schwartz, F.R., Mark, I.T., Benson, J.C., Amrhein, T.J..
American Journal of Neuroradiology (2023) <http://dx.doi.org/10.3174/ajnr.A7887>

2022

NAEOTOM Alpha

Photon-counting Detector CT for Temporal Bone Imaging : Up to Three Times the Resolution at Half the Radiation Dose.

Macielak, R. J., Benson, J. C., Lane, J. I., Carlson, M. L., Leng, S. (2022).
Otology and Neurotology <https://doi.org/10.1097/MAO.0000000000003682>

NAEOTOM Alpha

Photon-counting Detector CT Virtual Monoenergetic Images for Cochlear Implant Visualization—A Head to Head Comparison to Energy-Integrating Detector CT. Tomography.

Waldeck, S., Overhoff, D., Alizadeh, L., Becker, B. V., Port, M., Froelich, M. F., Brockmann, M. A., Schumann, S., Vogl, T. J., Schoenberg, S. O., Schmidt, S. (2022).
Tomography, 8(4), 1642–1648. <https://doi.org/10.3390/tomography8040136>

NAEOTOM Alpha

Spectral Shaping Via Tin Prefiltration in Ultra-High-Resolution Photon-counting and Energy-Integrating Detector CT of the Temporal Bone.

Grunz, J., Heidenreich, J. F., Lennartz, S., Weighardt, J. P., Bley, T. A., Ergün, S., Petritsch, B., Huflage, H. (2022).
Investigative Radiology, 1–7. <https://doi.org/10.1097/RLI.0000000000000901>

NAEOTOM Alpha

Ultra-Low-Dose Photon-counting CT Imaging of the Paranasal Sinus With Tin Prefiltration—How low can we go?

Grunz, J., Petritsch, B., Luetkens, K. S., Kunz, A. S., Lennartz, S., Ergün, S., Bley, T. A., Huflage, H. (2022).
Investigative Radiology, 1–6. <https://doi.org/10.1097/RLI.0000000000000887>

NAEOTOM Alpha

Image-Quality Assessment of Polyenergetic and Virtual Monoenergetic Reconstructions of Unenhanced CT Scans of the Head: Initial Experiences with the First Photon-counting CT Approved for Clinical Use.

Michael, A. E., Boriesosdick, J., Schoenbeck, D., Woeltjen, M. M., Saeed, S., Kroeger, J. R., Horstmeier, S., Lennartz, S., Borggrete, J., Niehoff, J. H. (2022).
Diagnostics, 12(2), 265. <https://doi.org/10.3390/diagnostics12020265>

2021

NAEOTOM Alpha

Photon-counting Computed Tomography Scan of a Cerebrospinal Fluid Venous Fistula.

Kranz, P. G., Gray, L., Malinzak, M. D., Houk, J. L., Kim, D. K., Amrhein, T. J. (2021).
American Journal of Roentgenology, 217(6), 1418–1430. <https://doi.org/10.2214/AJR.21.26182>

2020

NAEOTOM Alpha

Long-term outcome of patients with spinal dural arteriovenous fistula: The dilemma of delayed diagnosis.

Jablawi, F., Schubert, G. A., Dafotakis, M., Pons-Kühnemann, J., Hans, F. J., & Mull, M. (2020).
American Journal of Neuroradiology, 41(2), 357–363. <https://doi.org/10.3174/ajnr.A6372>

7. Dental imaging

2025

NAEOTOM Alpha

Exploring Dental Anatomy: An Ex Vivo Comparative Study Between Photon-Counting Detector CT and Cone-Beam CT

Al-Haj Husain, A., Benz, F., Mergen, V., Valdec, S., Winklhofer, S., Alkadhi, H., Essig, H., Frauenfelder, T., Spin-Neto, R., and Stadlinger, B.
Clinical and Experimental Dental Research. 11(6):e70266 (2025) <https://doi.org/10.1002/cre2.70266>

NAEOTOM Alpha

Cone-beam versus photon-counting detector CT: Influence of dose variations on the detection of simulated mandibular osseous lesions

RECOMMENDED

Adib Al-Haj Husain, Victor Mergen, Silvio Valdec, Sebastian Winklhofer, Hatem Alkadhi, Harald Essig, Thomas Frauenfelder, Peter Kessler, Suen An Nynke Lie, Bernd Stadlinger.

Journal of Cranio-Maxillofacial Surgery, 2025, ISSN 1010-5182, <https://doi.org/10.1016/j.jcms.2025.04.023>

NAEOTOM Alpha

Dental implant artifacts: Evaluation of photon counting CT-derived virtual monoenergetic images in combination with iterative metal artifact reduction algorithms

Julian Schreck, Julius Henning Niehoff, Saher Saeed, Jan Robert Kroeger, Simon Lennartz, Kai Roman Laukamp, Jan Borggreffe, Arwed Elias Michael,

European Journal of Radiology, Volume 187, 2025, 112117, ISSN 0720-048X, <https://doi.org/10.1016/j.ejrad.2025.112117>.

NAEOTOM Alpha

Comparison of cone-beam computed tomography with photon-counting detector computed tomography for dental implant surgery

Al-Haj Husain, A., Mergen, V., Valdec, S. et al.

Int J Implant Dent 11, 21 (2025). <https://doi.org/10.1186/s40729-025-00611-z>

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NAEOTOM Alpha

Helpfulness of effective atomic number image in forensic dental identification: Photon-counting computed tomography is suitable.

Asahara, T., Okada, S., Hayashi, H., Maeda, T., Nishigami, R., Kobayashi, D., Kurose, C., Kimoto, N., Goto, S., Hisatomi, M., Yanagi, Y., & Iguchi, T. (2025).

Computers in Biology and Medicine, 184 (April 2024), 109333. <https://doi.org/10.1016/j.compbimed.2024.109333>

NAEOTOM Alpha

Potential Benefits of Photon-Counting CT in Dental Imaging: A Narrative Review.

Zanon, C., Pepe, A., Cademartiri, F., Bini, C., Maffei, E., Quaia, E., Stellini, E., & Di Fiore, A. (2024).

Journal of Clinical Medicine, 13(8). <https://doi.org/10.3390/jcm13082436>

NAEOTOM Alpha

Dental imaging in clinical photon-counting CT at a quarter of DVT dose.

Sawall, S., Maier, J., Sen, S., Gehrig, H., Kim, T. S., Schlemmer, H. P., Schönberg, S. O., Kachelrieß, M., & Rütters, M. (2024).

Journal of Dentistry, 142. <https://doi.org/10.1016/j.jdent.2024.104859>

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NAEOTOM Alpha

Artifact Reduction From Dental Material in Photon-counting Detector Computed Tomography Data Sets Based on High-keV Monoenergetic Imaging and Iterative Metal Artifact Reduction Reconstructions — Can We Combine the Best of Two Worlds ?

Risch, F., Decker, J. A., Popp, D., Sinzinger, A., Braun, F., Bette, S., Jehs, B., Haerting, M., Wollny, C., Scheurig-Muenkler, C., Kroencke, T. J., & Schwarz, F. (2023).

Investigative Radiology, 1–6. <https://doi.org/10.1097/RLI.0000000000000967>

8. Muskuloskeletal imaging

2025

NAEOTOM Alpha

Anisotropic Mechanical Characterization of Trabecular Bone With Linear and Non-Linear Voxel-Based Finite Elements From Photon-Counting CT

Quintiens, J., Morren, T., Coudyzer, W., and van Lenthe, G.H.

Bone. 202:117683 (2026) <https://doi.org/10.1016/j.bone.2025.117683>

NAEOTOM Alpha

Photon-Counting CT Versus Energy-Integrating Detector and Flat-Panel CT for Cadaveric Wrist Arthrography With Additional Tin Filter Dose Reduction

de Boer, J., Salimova, N., Weidemann, F., Behrendt, L., Werncke, T., Wacker, F.K., and Sonnow, L.

European Radiology Experimental. 9(1):83 (2025) <https://doi.org/10.1186/s41747-025-00604-y>

NAEOTOM Alpha

Detection of Lumbar Disc Herniation and Degeneration Using Photon-Counting Detector CT With Virtual Non-Calcium Imaging

Shu, D., Zhang, C., Wang, J., Zhao, L., Liang, X., Liang, D., Yang, J., and Zhao, Z.
European Radiology. (2025) <https://doi.org/10.1007/s00330-025-11922-5>

NAEOTOM Alpha

Photon-Counting Detector CT in Musculoskeletal Imaging: Benefits and Outlook

El Sadaney, A.O., Ferrero, A., Rajendran, K., Booi, R., Marcus, R., Sutter, R., Oei, E.H.G., and Baffour, F.
British Journal of Radiology. 98(1175):1859–1862 (2025) <https://doi.org/10.1093/bjrtqaf124>

NAEOTOM Alpha

Assessment of metal artifacts from titanium wrist prostheses: photon-counting versus energy-integrating detector CT

Kämmerling, N., Farnebo, S., Sandstedt, M. *et al.*
Eur Radiol Exp 9, 45 (2025). <https://doi.org/10.1186/s41747-025-00587-w>

NAEOTOM Alpha

Assessment of bone-implant interface image quality for in-vivo acetabular cup implants using photon-counting detector CT: Impact of tin pre-filtration

Booi, Ronald *et al.*
European Journal of Radiology Open, Volume 14, 100646 (2025). <https://doi.org/10.1016/j.ejro.2025.100646>

NAEOTOM Alpha

In Vivo Bone Mineral Density Assessment With Spectral Localizer Radiographs From Photon-Counting Detector CT: Prospective Comparison With DXA.

RECOMMENDED

Moser, Lukas Jakob MD; Klambauer, Konstantin MD; Diaz Machicado, Maria Carolina MD; Frey, Diana MD; Mergen, Victor MD; Eberhard, Matthias MD; Nowak, Tristan PhD; Schmidt, Bernhard PhD; Flohr, Thomas PhD; Distler, Oliver MD; Alkadhi, Hatem MD, MPH, EBCR, FESER Investigative Radiology ():10.1097/RLI.0000000000001159, February 4, 2025.
<https://doi.org/10.1097/RLI.0000000000001159>

NAEOTOM Alpha

Visualization of Bony Union after Discectomy and Fusion Using Photon-Counting Detector CT

Stephan Rau, Jakob Weiss
Radiology 2025 Mar;314(3):e242514. <https://doi.org/10.1148/radiol.242514>

2024

NAEOTOM Alpha

Reducing Metal Artifacts in Clinical Photon Counting Detector Computed Tomography—A Phantom Study of an Exemplary Total Hip Arthroplasty.

Marcus, R. P., Feuerriegel, G. C., Marth, A. A., Goller, S. S., Nanz, D., Anhaus, J., & Sutter, R. (2024).
Skeletal Radiology. <https://doi.org/10.1007/s00256-024-04820-2>

NAEOTOM Alpha

Opportunistic Bone Mineral Density Measurement Using Photon-Counting Detector CT Spectral Localizer Images: A Prospective Study.

El Sadaney, A.O., Ferrero, A., Rajendran, K., Jasper, S., Mazza, G.L., Broski, S.M., Shanblatt, E., Nowak, T., Fletcher, J.G., McCollough, C.H., Baffour, F.I. (2024).
Biomedical Materials, 0–16. <https://doi.org/10.2214/AJR.24.31909>

NAEOTOM Alpha

The quantification of bone mineral density using photon-counting computed tomography and its implications for detecting bone remodeling.

Quintiens, J., Coudyzer, W., Bevers, M., Vereecke, E., van den Bergh, J.P., Manske, S.L., van Lenthe, G.H.
J Bone Miner Res. 2024 Nov 29;39(12):1774-1782. <https://doi.org/10.1093/jbmr/zjae163>

NAEOTOM Alpha

Multiplanar reconstructions of the thoracic spine in a photon counting dual-source CT scanner : comparison to EID-CT.

Bette, S. J., Braun, F. M., Luitjens, J. H., Kaufmann, D., Decker, J., Becker, J., Scheurig-muenkler, C., Kroencke, T. J., & Schwarz, F. (2024).
<https://doi.org/10.1177/02841851241271109>

NAEOTOM Alpha

Photon-Counting Detector CT Applications in Musculoskeletal Radiology.

Grunz, J. P., & Huflage, H. (2024).
Investigative Radiology, 00(00), 1–7. <https://doi.org/10.1097/RLI.0000000000001108>

NAEOTOM Alpha

Quantitative metrics of bone quality determined at the distal radius using photon-counting CT.

Dutta, A., Ferrero, A., Rajendran, K., Drake, M. T., Ou, F. S., Giri, S., Fletcher, J. G., McCollough, C. H., & Baffour, F. I. (2024). *Skeletal Radiology*. <https://doi.org/10.1007/s00256-024-04770-9>

NAEOTOM Alpha

Photon-Counting Computed Tomography: Experience in Musculoskeletal Imaging.

Grunz, J. P., & Huflage, H. (2024). *Korean Journal of Radiology*, 25(7), 662–672. <https://doi.org/10.3348/kjr.2024.0096>

NAEOTOM Alpha

Photon-Counting CT in Musculoskeletal Imaging—10 Key Questions Answered.

Vosshenrich, J., O'Donnell, T., & Fritz, J. (2024). *Seminars in Roentgenology*. <https://doi.org/10.1053/j.ro.2024.05.003>

NAEOTOM Alpha

Photon-Counting Computed Tomography for Microstructural Imaging of Bone and Joints.

Quintiens, J., & van Lenthe, G. H. (2024). *Current Osteoporosis Reports*, 0123456789. <https://doi.org/10.1007/s11914-024-00876-0>

NAEOTOM Alpha

Photon-counting detector computed tomography for metal artifact reduction: a comparative study of different artifact reduction techniques in patients with orthopedic implants.

Pallasch, F. B., Rau, A., Reiser, M., Rau, S., Diallo, T., Stein, T., Faby, S., Bamberg, F., & Weiss, J. (2024). *Radiologia Medica*, 0123456789. <https://doi.org/10.1007/s11547-024-01822-x>

NAEOTOM Alpha

Photon-Counting Detector CT Virtual Monoenergetic Images in Cervical Trauma Imaging—Optimization of Dental Metal Artifacts and Image Quality.

Dillinger, D., Overhoff, D., Froelich, M. F., Kaatsch, H. L., Booz, C., Hagen, A., Vogl, T. J., Schönberg, S. O., & Waldeck, S. (2024). *Diagnostics*, 14(6), 626. <https://doi.org/10.3390/diagnostics14060626>

NAEOTOM Alpha

A comparative study of image quality and diagnostic confidence in diagnosis and follow-up of scaphoid fractures using photon-counting detector CT and energy-integrating detector CT.

Kämmerling, N., Tesselaaar, E., Booi, R., Fornander, L., Persson, A., & Farnebo, S. (2024). *European Journal of Radiology*, 173, 111383. <https://doi.org/10.1016/j.ejrad.2024.111383>

NAEOTOM Alpha

Accuracy of photon-counting computed tomography for the measurement of bone quality in the knee.

Azari, F., Uniyal, P., Soete, J., Coudyzer, W., Wyers, C. E., Quintiensi, J., van den Bergh, J. P., & van Lenthe, G. H. (2024). *Bone*, 181, 117027. <https://doi.org/10.1016/j.bone.2024.117027>

NAEOTOM Alpha

Severe metallosis following catastrophic failure of total shoulder arthroplasty — a case report.

Ogunfuwa, F. O., Needell, S., & Simovitch, R. W. (2024). *Skeletal Radiology*. <https://doi.org/10.1007/s00256-024-04575-w>

NAEOTOM Alpha

Photon-Counting Detector CT Clinical Utility of Virtual Monoenergetic Imaging Combined With Tin Prefiltration to Reduce Metal Artifacts in the Postoperative Ankle.

Marth, A. A., Goller, S. S., Kajdi, G. W., Roy, P., & Sutter, R. (2024). *Investigative Radiology* 1–9. <https://doi.org/10.1097/RLI.0000000000001058>

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NAEOTOM Alpha

Bone Mineral Density Assessment Using Spectral Topograms From a Clinical Photon-counting Detector CT System: A Phantom Evaluation.

Moser, L. J., Pitteloud, J., Mergen, V., Frey, D., Nowak, T., Distler, O., Eberhard, M., & Alkadhi, H. (2023). *American Journal of Roentgenology*. <https://doi.org/10.2214/ajr.23.30347>

NAEOTOM Alpha

Metal artifact reduction in patients with total hip replacements : evaluation of clinical photon counting CT using virtual monoenergetic images.

Schreck, J., Roman, K., Julius, L., Niehoff, H., Elias, A., Jan, M., Michael, M., Jan, W., Kröger, R., Reimer, R. P., Peter, J., Jan, G., & Lennartz, S. (2023). *European Radiology*. <https://doi.org/10.1007/s00330-023-09879-4>

NAEOTOM Alpha

Ultra-high resolution Photon-counting CT with tin prefiltration for bone-metal interface visualization.

Patzer, T. S., Grunz, J.-P., Huflage, H., Hennes, J.-L., Pannenbecker, P., Gruschwitz, P., Afat, S., Herrmann, J., Bley, T. A., & Kunz, A. S. (2023).

European Journal of Radiology, 170, 111209. <https://doi.org/10.1016/j.ejrad.2023.111209>

NAEOTOM Alpha

Photon-counting Detector CT With Denoising for Imaging of the Osseous Pelvis at Low Radiation Doses: A Phantom Study.

Marcus, R. P., Nagy, D., Feuerriegel, G. C., Anhaus, J., Nanz, D., & Sutter, R. (2023).

American Journal of Roentgenology. <https://doi.org/10.2214/ajr.23.29765>

NAEOTOM Alpha

Photon-counting Detector CT Versus Energy-Integrating Detector CT of the Lumbar Spine: Comparison of Radiation Dose and Image Quality.

Marth, A. A., Marcus, R. P., Feuerriegel, G. C., Nanz, D., & Sutter, R. (2023).

American Journal of Roentgenology. <https://doi.org/10.2214/ajr.23.29950>

NAEOTOM Alpha

Rotational alignment of the lower extremity in the presence of total knee endoprosthesis: Reproducibility of torsion analyses using ultra-low-dose Photon-counting CT.

Patzer, T. S., Kunz, A. S., Huflage, H., Luetkens, K. S., Conrads, N., Pannenbecker, P., Jakuscheit, A., Reppenhagen, S., Ergün, S., Bley, T. A., & Grunz, J. P. (2023).

European Journal of Radiology, 167(June), 111055. <https://doi.org/10.1016/j.ejrad.2023.111055>

NAEOTOM Alpha

Ultra-High-Resolution Photon-counting Detector CT Arthrography of the Ankle: A Feasibility Study.

Luetkens, K. S., Grunz, J.-P., Kunz, A. S., Huflage, H., Weißenberger, M., Hartung, V., Patzer, T. S., Gruschwitz, P., Ergün, S., Bley, T. A., & Feldle, P. (2023).

Diagnostics, 13(13), 2201. <https://doi.org/10.3390/diagnostics13132201>

NAEOTOM Alpha

Quantitative and qualitative image quality assessment in shoulder examinations with a first - generation photon - counting detector CT.

Patzer, T. S., Kunz, A. S., Huflage, H., Luetkens, K. S., Conrads, N., Gruschwitz, P., Pannenbecker, P., Ergün, S., Bley, T. A., & Grunz, J. P. (2023).

Scientific Reports, 1–8. <https://doi.org/10.1038/s41598-023-35367-2>

NAEOTOM Alpha

Combining iterative metal artifact reduction and virtual monoenergetic images severely reduces hip prosthesis - associated artifacts in photon - counting detector CT.

Layer, Y. C., Mesropyan, N., Kupczyk, P. A., Luetkens, J. A., Isaak, A., Dell, T., Attenberger, U. I., & Kuetting, D. (2023).

Scientific Reports, 1–11. <https://doi.org/10.1038/s41598-023-35989-6>

NAEOTOM Alpha

Improved visualization of the bone - implant interface and osseointegration in ex vivo acetabular cup implants using photon - counting detector CT.

Woisetschläger, M., Booi, R., Tesselaar, E., Oei, E. H. G., & Schilcher, J. (2023).

European Radiology Experimental. <https://doi.org/10.1186/s41747-023-00335-y>

NAEOTOM Alpha

Photon-counting CT of elbow joint fractures: image quality in a simulated post-trauma setting with off-center positioning.

Sonnow, L., Salimova, N., Behrendt, L., Wacker, F. K., Örgel, M., Plagge, J., & Weidemann, F. (2023).

European Radiology Experimental, 7(1), 15. <https://doi.org/10.1186/s41747-023-00329-w>

NAEOTOM Alpha

Feasibility of Photon-counting CT for femoroacetabular impingement syndrome evaluation: lower radiation dose and improved diagnostic confidence.

Ferrero, A., Powell, G. M., Adaaquah, D. K., Rajendran, K., Thorne, J. E., Krych, A. J., Horst, K. K., McCollough, C. H., & Baffour, F. I. (2023).

Skeletal Radiology, <https://doi.org/10.1007/s00256-023-04325-4>

NAEOTOM Alpha

Photon-counting Computed Tomography (PC-CT) of the spine: impact on diagnostic confidence and radiation dose.

Rau, A., Straehle, J., Stein, T., Diallo, T., Rau, S., Faby, S., Nikolaou, K., Schoenberg, S. O., Overhoff, D., Beck, J., Urbach, H., Klingler, J. H., Bamberg, F., & Weiss, J. (2023).

European Radiology. <https://doi.org/10.1007/s00330-023-09511-5>

NAEOTOM Alpha

Ultrahigh-resolution computed tomography of the cervical spine without dose penalty employing a cadmium-telluride Photon-counting detector.

Conrads, N., Grunz, J., Huflage, H., Luetkens, K. S., Feldle, P., Pennig, L., Ergün, S., Bley, T. A., Petritsch, B., & Kunz, A. S. (2023). European Journal of Radiology, 110718. <https://doi.org/10.1016/j.ejrad.2023.110718>

NAEOTOM Alpha

Assessment of visibility of bone structures in the wrist using normal and half of the radiation dose with Photon-counting detector CT.

Oei, E. H. G., Persson, A., Booi, R., Nina, F. K., & Tesselaar, E. (2023). European Journal of Radiology 159(December 2022). <https://doi.org/10.1016/j.ejrad.2022.110662>

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NAEOTOM Alpha

Photon-counting detector computed tomography (PCD-CT) – an emerging technology in hand and wrist imaging.

Booi, R., Sandstedt, M., Tesselaar, E., & Farnebo, S. (2022). Journal of Hand Surgery: European Volume(0) 1-6. <https://doi.org/10.1177/17531934221132692>

NAEOTOM Alpha

Photon-counting Detector CT for Musculoskeletal Imaging: A Clinical Perspective.

Baffour, F. I., Flazebrook, K. N., Ferrero, A., Leng, S., McCollough, C. H., Fletcher, J. G., Rajendran, K. (2022). American Journal of Roentgenology. <https://doi.org/10.2214/AJR.22.28418>

NAEOTOM Alpha

Potential of employing a quantum iterative reconstruction algorithm for ultra-high-resolution Photon-counting detector CT of the hip.

Huflage, H., Grunz, J.-P., Kunz, A. S., Patzer, T. S., Sauer, S. T., Christner, S. A., Petritsch, B., Ergün, S., Bley, T. A., Luetkens, K. S. Radiography, 29(1), 44-49. (2022) <https://doi.org/10.1016/j.radi.2022.09.010>

NAEOTOM Alpha

Effective Spatial Resolution of Photon Counting CT for Imaging of Trabecular Structures is Superior to Conventional Clinical CT and Similar to High Resolution Peripheral CT.

Sebastian, F., Thomsen, L., Horstmeier, S., Niehoff, J. H., Peña, J. A., Borggrefe, J. (2022). Investigative Radiology, 1–7. <https://doi.org/10.1097/RLI.0000000000000873>

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NAEOTOM Alpha

Visualization of bone details in a novel Photon-counting dual-source CT scanner-comparison with energy-integrating CT.

Bette, S. J., Braun, F. M., Haerting, M., Decker, J. A., Luitjens, J. H., Scheurig-Muenkler, C., Kroencke, T. J., Schwarz, F. (2021). European Radiology, 32(5), 2930-2936. <https://doi.org/10.1007/s00330-021-08441-4>

9. Pediatric imaging

2026

NAEOTOM Alpha

Photon-Counting CT in Children: A Literature Review

Pasady, F.L., and El-Ali, A.M. Journal of Computer Assisted Tomography. 50(1):65–72 (2026) <https://doi.org/10.1097/RCT.0000000000001810>

NAEOTOM Alpha

Reduction of Radiation Exposure and Preserved Image Quality Using Photon-Counting Detector Cardiac Computed Tomography Without Electrocardiographic Gating in Children With Congenital Heart Disease

Hellms, S., Werncke, T., Böttcher, J., Happel, C.M., Eckstein, J., Krueger, M.B., Panknin, C., Pfeil, A., Kaireit, T.F., Beerbaum, P., Vogel-Claussen, J., Wacker, F., and Renz, D.M. European Radiology. 36(1):324–333 (2026) <https://doi.org/10.1007/s00330-025-11719-6>

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NAEOTOM Alpha

Photon-Counting CT in Pediatric Patients: A Multi-Institutional Evaluation of Protocols and Radiation Exposure in 4,772 Patients

Habib Geryes, B., Moalla, S., De Saint Etienne, E., Moussier, A., Pontana, F., Boddaert, N., Pontvianne, V., and Dangouloff-Ros, V.; Collaborative authors.

Diagnostic and Interventional Imaging. (2025) <https://doi.org/10.1016/j.diii.2025.11.010>

NAEOTOM Alpha

Photon-Counting Detector CT Enables Pediatric Low-Dose Chest Imaging With Further Reduction of Radiation Exposure

Krueger, M.B., Werncke, T., Eicke, M., Schwerk, N., Eckstein, J., Huisinga, C., Panknin, C., Shin, H.O., Silchmüller, F.J., Schultze-Florey, R.E., Hansen, G., Wacker, F., Hellms, S., and Renz, D.M.

Investigative Radiology. (2025) <https://doi.org/10.1097/RLI.0000000000001234>

NAEOTOM Alpha

Quantifying Performance Enhancements in Photon-Counting Pediatric Head CT: A Direct Comparison With Energy-Integrating CT

Naceanceno, K., Thomas, A., Zhang, Z., Sanchez, A., Lappe, C., Skinner, N., Abadia, A., Landrum, K., and McKinstry, R.

Pediatric Radiology. 55(8):1690–1701 (2025) <https://doi.org/10.1007/s00247-025-06295-2>

NAEOTOM Alpha

Comparison of Radiation Dose and Image Quality in Pediatric Abdominopelvic Photon-Counting Versus Energy-Integrating Detector CT.

RECOMMENDED

Siegel, Marilyn J. MD; Thomas, Matthew Allan PhD; Haq, Adeel MD; Seymore, Noah MD; Sodhi, Kushaljit Singh MD; Abadia, Andres PhD.

Journal of Computer Assisted Tomography ():10.1097/RCT.0000000000001730, January 31, 2025.

<https://doi.org/10.1097/RCT.0000000000001730>

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NAEOTOM Alpha

Pediatric contrast-enhanced chest CT on a photon-counting detector CT: radiation dose and image quality compared to energy-integrated detector CT.

RECOMMENDED

El-Ali, A. M., Strubel, N., Pinkney, L., Xue, C., Dane, B., & Lala, S. V. (2024).

Pediatric Radiology, 0123456789. <https://doi.org/10.1007/s00247-024-06078-1>

NAEOTOM Alpha

Unlocking the Potential of Photon Counting Detector CT (PCD-CT) for Paediatric Imaging: a pictorial essay.

Aliukonyte, I., Caudri, D., Booi, R., van Straten, M., L Dijkshoorn, M., P J Budde, R., H.G. Oei, Edwin., Saba, L., A W M Tidden, H., Ciet, P., (2024).

BJR Open, <https://doi.org/10.1093/bjro/tzae015>

NAEOTOM Alpha

Photon counting detector computed tomography in pediatric cardiothoracic CT imaging.

Siegel, M. J., & Ramirez-Giraldo, J. C. (2024).

Radiology Advances, 1(2), 1–11. <https://doi.org/10.1093/radadv/umae012>

NAEOTOM Alpha

Photon-counting computed tomography for paediatric congenital heart defects yields images of high diagnostic quality with low radiation doses at both 70 kV and 90 kV.

Stålhammar, F., Aurumskjöld, M. L., Meyer, S., Wiklund, M., Wingren, P., Liuba, P., & Hedström, E. (2024).

Pediatric Radiology, 0123456789. <https://doi.org/10.1007/s00247-024-05939-z>

NAEOTOM Alpha

Universal 120-kV Dual-Source Ultra-High Pitch Protocol on the Photon-Counting CT System for Pediatric Abdomen of All Sizes : A Phantom Investigation Comparing With Energy-Integrating CT.

Zhou, W., Huo, D., Lorna, P., Zhou, X., & Weinman, J. (2024).

Investigative Radiology 1–8. <https://doi.org/10.1097/RLI.0000000000001080>

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NAEOTOM Alpha

Photon-counting versus Dual-Source CT of Congenital Heart Defects in Neonates and Infants : Initial Experience.

Dirrichs, T., Tietz, E., Rüffer, A., Hanten, J., Nguyen, T., Dethlefsen, E. (2023).

Radiology 2023; 307(5):e223088 <https://doi.org/10.1148/radiol.223088>

NAEOTOM Alpha

Comparison of Radiation Dose and Image Quality of Pediatric High- Resolution Chest CT Between Photon-counting Detector CT and Energy- Integrated Detector CT: A Matched Study.

Siegel, M. J., Bugenhagen, & Sanchez, A., Kim S., Abadia, A. Ramirez-Giraldo, J.C.(2023). <https://doi.org/10.2214/AJR.23.29077>

NAEOTOM Alpha

Low dose pediatric chest computed tomography on a photon counting detector system – initial clinical experience.

Tsiflikas, I., Thater, G., Ayx, I., Weiss, J., Schaefer, J., Stein, T., Schoenberg, S. O., & Weis, M. (2023).

Pediatric Radiology, 1–6. <https://doi.org/10.1007/s00247-022-05584-4>

NAEOTOM Alpha

Pilot study to determine whether reduced - dose photon - counting detector chest computed tomography can reliably display Brody II score imaging findings for children with cystic fibrosis at radiation doses that approximate radiographs.

Horst, K. K., Hull, N. C., Thacker, P. G., Demirel, N., Yu, L., Mcdonald, J. S., Larson, N. B., Mccollough, C. H., & Fletcher, J. G. (2023).

Pediatric Radiology. <https://doi.org/10.1007/s00247-022-05574-6>

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NAEOTOM Alpha

Pediatric Applications of Photon-counting Detector CT.

Cao, J., Bache, S., Schwartz, F. R., Frush, D. (2022).

American Journal of Roentgenology. <https://doi.org/10.2214/AJR.22.28391>

10. Spectral imaging and contrast agents

2025

NAEOTOM Alpha

High-Z Contrast Media for Coronary Photon-Counting Detector CT Angiography: Improved Quantification of Calcified Stenoses

Demmert, T.T., Klambauer, K., Schmidt, B., Mergen, V., Moser, L.J., Maintz, P.N., Allmendinger, T., Flohr, T., Pietsch, H., Eberhard, M., and Alkadhi, H.

Investigative Radiology. (2025) <https://doi.org/10.1097/RLI.0000000000001262>

NAEOTOM Alpha

Contrast Medium Dose Optimization in the Era of Multi-Energy CT

Nagayama, Y., Nakaura, T., Awai, K., Katahira, K., Takahashi, S., Oyama-Manabe, N., Goshima, S., Kobayashi, Y., Murakami, T., Hirai, T., and Jinzaki, M.

Japanese Journal of Radiology. 43(11):1729–1745 (2025) <https://doi.org/10.1007/s11604-025-01823-4>

NAEOTOM Alpha

Dual-Source Dual-Energy Imaging Using Photon-Counting Detector CT for Bone Edema Detection: Leveraging Tin Prefiltration for Improved Spectral Performance.

RECOMMENDED

Rajendran, Kishore PhD; Ferrero, Andrea PhD; Shanblatt, Elisabeth R. PhD; McCollough, Cynthia H. PhD; Baffour, Francis I. MD.

Investigative Radiology. (2025) <https://doi.org/10.1097/RLI.0000000000001201>, April 25, 2025. | <https://doi.org/10.1097/RLI.0000000000001201>

NAEOTOM Alpha

Artifact Reduction in Interventional Devices Using Virtual Monoenergetic Images and Iterative Metal Artifact Reduction on Photon-Counting Detector CT

Layer YC, Faby S, Haase V, Schmidt B, Mesropyan N, Kupczyk PA, Isaak A, Dell T, Luetkens JA, Kuetting D.

Invest Radiol. 2025 Jan 3. <https://doi.org/10.1097/RLI.0000000000001149>

NAEOTOM Alpha

CT material decomposition with contrast agents : Single or multiple spectral photon-counting CT scans ? A simulation study.

Sawall, S., Baader, E., Trapp, P., & Kachelrieß, M. (2025).

April 2024, 1–24. <https://doi.org/10.1002/mp.17604>

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NAEOTOM Alpha

Assessing the stability of photon-counting CT: insights from a 2-year longitudinal study.

Liu, L. P., Pasyar, P., Liu, F., Cao, Q., Sandvold, O. F., Rybertt, M. V., Sahbaee, P., Shinohara, R. T., Litt, H. I., & Noël, P. B. (2024).

European Radiology. <https://doi.org/10.1007/s00330-024-11244-y>

NAEOTOM Alpha

Multienery Cardiovascular CT Imaging : Current State and Future.

Klambauer, K., Lisi, C., Moser, L. J., Mergen, V., Flohr, T., Eberhard, M., Alkadhi, H. (2024)

British Journal of Radiology, <https://doi.org/10.1093/bjr/tqae246>

NAEOTOM Alpha

Performance improvements of virtual monoenergetic images in photon-counting detector CT compared with dual source dual-energy CT: Fourier-based assessment.

Kawashima, H., Ichikawa, K., Yoshida, R., Katayama, T., Arimoto, M., Kataoka, J., Nagata, H., & Kobayashi, S. (2024).

Physical and Engineering Sciences in Medicine. <https://doi.org/10.1007/s13246-024-01499-6>

NAEOTOM Alpha

Radiomics-driven spectral profiling of six kidney stone types with monoenergetic CT reconstructions in photon-counting CT.

Hertel, A., Froelich, M. F., Overhoff, D., Nestler, T., Faby, S., Jürgens, M., Schmidt, B., Vellala, A., Hesse, A., Nörenberg, D., Stoll, R., Schmelz, H., Schoenberg, S. O., & Waldeck, S. (2024).

European Radiology. <https://doi.org/10.1007/s00330-024-11262-w>

NAEOTOM Alpha

Performance of iodine quantification through high-pitch dual-source photon-counting CT: a phantom study.

Liu, P., Zhou, S., Dong, H., Li, J., Xu, Z., Lin, S., Yang, W., Yan, F., & Qin, L. (2024).

Japanese Journal of Radiology. <https://doi.org/10.1007/s11604-024-01671-8>

NAEOTOM Alpha

Performance evaluation of single- and dual-contrast spectral imaging on a photon-counting-detector CT.

Ren, L., Zhou, Z., Ahmed, Z., Rajendran, K., Fletcher, J. G., Mccollough, C. H., & Yu, L. (2024).

Medical Physics. July, 1–13. <https://doi.org/10.1002/mp.17367>

NAEOTOM Alpha

Optimal Spectral Performance on Pediatric Photon-Counting CT Investigating Phantom-Based Size-Dependent kV Selection for Spectral Body Imaging.

Zhou, W., Ataei, A., Huo, D., Ren, L., & Lorna, P. (2024).

Invest. Radiol. 1–8. <https://doi.org/10.1097/RLI.0000000000001119>

NAEOTOM Alpha

Virtual non-contrast images in photon-counting computed tomography : impact of different contrast phases.

Gadsbøll, E. L., Holmquist, F., & Aurumskjöld, M. (2024).

<https://doi.org/10.1177/02841851241271202>

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NAEOTOM Alpha

Assessment of Iodine Contrast-To-Noise Ratio in Virtual Monoenergetic Images Reconstructed from Dual-Source Energy-Integrating CT and Photon-counting CT Data.

Booij, R., van der Werf, N. R., Dijkshoorn, M. L., van der Lugt, A., van Straten, M. (2022).

Diagnostics, 12(6), 1467. <https://doi.org/10.3390/diagnostics12061467>

NAEOTOM Alpha

First-generation clinical dual-source Photon-counting CT: ultra-low dose quantitative spectral imaging.

Liu, L. P., Shapira, N., Chen, A. A., Shinohara, R. T., Sahbaee, P., Schnall, M., Litt, H. I., Noël, P. B. (2022).

European Radiology. <https://doi.org/10.1007/s00330-022-08933-x>

NAEOTOM Alpha

Virtual Noncontrast Abdominal Imaging with Photon-counting Detector CT.

Mergen, V., Racine, D., Jungblut, L., Sartoretti, T., Bickel, B. S., Monnin, P., Higashigaito, K., Martini, K., Alkadhi, H., Euler, A. (2022).

Radiology, 00, 1–9. <https://doi.org/10.1148/radiol.213260>

NAEOTOM Alpha

Virtual Non-Contrast Reconstructions of Photon-counting Detector CT Angiography Datasets as Substitutes for True Non-Contrast Acquisitions in Patients after EVAR—Performance of a Novel Calcium-Preserving Reconstruction Algorithm.

Decker, J. A., Bette, S., Scheurig-Muenkler, C., Jehs, B., Risch, F., Woźnicki, P., Braun, F. M., Haerting, M., Wollny, C., Kroencke, T. J., Schwarz, F. (2022).

Diagnostics, 12(3), 558. <https://doi.org/10.3390/diagnostics12030558>

NAEOTOM Alpha

Contrast-Enhanced Abdominal CT with Clinical Photon-counting Detector CT: Assessment of Image Quality and Comparison with Energy-Integrating Detector CT.

Higashigaito, K., Euler, A., Eberhard, M., Flohr, T. G., Schmidt, B., Alkadhi, H. (2022).

Academic Radiology, 29(5), 689-697. <https://doi.org/10.1016/j.acra.2021.06.018>

12. Dose / Image Quality

2025

NAEOTOM Alpha

Photon-Counting-Detector CT: Technology Overview and Radiation Dose Reduction

Ren, Liqiang & Duan, Xinhui & Ahn, Richard & Kay, Fernando & Daftaribesheli, Laleh & Zhou, Wei & Guild, Jeffrey & Ananthakrishnan, Lakshmi.

The British journal of radiology. <https://doi.org/10.1093/bjr/tqaf116>

NAEOTOM Alpha

Image quality and dose reduction with photon counting detector CT: Comparison between ultra-high resolution mode and standard mode using a phantom study.

Greffier J, Van Ngoc Ty C, Sammoud S, Croisille C, Beregi JP, Dabli D, Fitton I.

Diagn Interv Imaging. 2025 Apr 7:S2211-5684(25)00069-5. <https://doi.org/10.1016/j.diii.2025.03.009>

2024

NAEOTOM Alpha

Task-based automatic keV selection: leveraging routine virtual monoenergetic imaging for dose reduction on clinical photon-counting detector CT

Rajendran, K., Bruesewitz, M., Swicklik, J., Ferrero, A., Thorne, J., Yu, L., McCollough, C., Leng, S. (2024).

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Potential radiation dose reduction in clinical Photon-counting CT by the small pixel effect: ultra-high resolution (UHR) acquisitions reconstructed to standard resolution.

Fix Martinez, M., Klein, L., Maier, J., Rotkopf, L. T., Schlemmer, H. P., Schönberg, S. O., Kachelrieß, M., & Sawall, S. (2023).

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Optimization of the Reconstruction Settings for Low-Dose Ultra-High-Resolution Photon-counting Detector CT of the Lungs.

Graafen, D., Halfmann, M. C., Emrich, T., Yang, Y., Kreuter, M., Düber, C., Kloeckner, R., Müller, L., & Jorg, T. (2023).

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Clinical low dose photon counting CT for the detection of urolithiasis: Evaluation of image quality and radiation dose.

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Quantum Iterative Reconstruction for abdominal photon-counting detector CT improves image quality.

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12. Workflow / Others

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Improved Thermal Sensitivity Using Virtual Monochromatic Imaging Derived From Photon Counting Detector CT Data Sets: Ex Vivo Results of CT-Guided Cryoablation in Porcine Liver

Decker, J.A., Risch, F., Schwarz, F., Scheurig-Muenkler, C., and Kroencke, T.J.

Cardiovascular and Interventional Radiology. 46(10):1385–1393 (2023) <https://doi.org/10.1007/s00270-023-03546-3>

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Lan, Y., Liu, R., Guo, L. et al.

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Radiomics Feature Stability in True and Virtual Non-Contrast Reconstructions from Cardiac Photon-Counting Detector CT Datasets.

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Comparing quantitative image parameters between animal and clinical CT-scanners: a translational phantom study analysis.

Vellala, A., Mogler, C., Haag, F., Tollens, F., Rudolf, H., Pietsch, F., Wängler, C., Wängler, B., Schoenberg, S. O., Froelich, M. F., & Hertel, A. (2024).

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An Image-Based Prior Knowledge-Free Approach for a Multi-Material Decomposition in Photon-Counting Computed Tomography.

Neumann, J., Nowak, T., Schmidt, B., & Zanthier, J. Von. (2024).

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Coronary stent imaging in photon counting computed Tomography: Optimization of reconstruction kernels in a phantom.

Elias Michael, A., Schoenbeck, D., Becker-Assmann, J., Henning Niehoff, J., Flohr, T., Schmidt, B., Panknin, C., Baer-Beck, M., Hickethier, T., Maintz, D., Christian Bunck, A., Borggrefe, J., Wiemer, M., Rudolph, V., & Robert Kroeger, J. (2023).

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Optimization of Kernel Type and Sharpness Level Improves Objective and Subjective Image Quality for High-Pitch Photon Counting Coronary CT Angiography.

Yang, Y., Fink, N., Emrich, T., Graafen, D., Richter, R., Bockius, S., Wolf, E. V, Laux, G., Kavermann, L., Müller, L., Hell, M., & Halfmann, M. C. (2023).

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Jost, G., Mcdermott, M., Gutjahr, R., Nowak, T., Schmidt, B., & Pietsch, H. (2023).

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Feasibility of photon - counting computed tomography as a novel imaging modality for challenging endodontic diagnostic tasks.

Fontenele, R. C., Picoli, F. F., Pinto, J. C., Coudyzer, W., Vasconcelos, K. D. F., Gomes, A. F., & Binst, J. (2023).

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Assessment of quantitative information for radiation therapy at a first-generation clinical Photon-counting computed tomography scanner.

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Niehoff, J. H., Heuser, A., Michael, A. E., Lennartz, S., Borggrefe, J., Kroeger, J. R. (2022).

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The products/features (here mentioned) are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

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