

Carmel Hayes

studied chemistry at universities in Dublin and Glasgow before going on to do a Ph.D. in polymer physics at the Ecole de Physique-Chimie in Paris. Following research positions at the Institut Laue-Langevin in Grenoble, France, and the Institute of Cancer Research in Sutton, UK, she joined Siemens Healthineers in 2001. The main focus of Carmel's current work is in the development of applications for cardiovascular MRI. Together with colleagues and collaborators she transforms new image acquisition, reconstruction and processing methods into commercially-available products. In this role, she maneuvers all of the latest cardiac MR imaging technologies through the product development phase. Carmel's recent projects culminated in the release of PSIR Heart Freeze and Compressed Sensing Cardiac Cine for 3T MAGNETOM Vida and 1.5T MAGNETOM Sola.



Erlangen, Germany



How did you first come in contact with MRI?

I first became interested in spin choreography while working in the field of neutron spin echo spectroscopy. Since there are a number of interesting parallels between neutron and proton spin echoes, I took a chance and applied for a research position as MRI physicist at the Institute of Cancer Research, even though I'd never seen an MRI system in my life before; according to what I read, it sounded just like something I'd like to do. During my first year of acquaintanceship with MRI I must have worked with at least twenty different MRI systems located all over the UK. From my base at the Royal Marsden Hospital in London I was able to get first-hand knowledge of the role MRI plays in the diagnosis and treatment of cancer. Since that decision to switch domains over 20 years ago, I am still a huge MRI fan.

What is most fascinating about MRI?

Magnetic resonance imaging is a highly interdisciplinary modality, with aspects varying from physics to mathematics and statistics, electronic and software engineering, physiology, pharmacokinetics and anatomy, to name but a few. I find this diversity very interesting, there's always something new to do. The images we can now acquire of the human body are of captivating detail, the methods are adaptive to motion; we can see the brain thinking, valves opening and shutting, blood flowing, muscles working. The fact that MRI can be paired with other modalities such as PET, can be used in combination with treatment devices, even during intervention makes it all the more fascinating. As a matter of course, there's nothing more aesthetically pleasing than a four-chamber cine of the heart.

What do you think are the most important developments in MRI and in Healthcare?

Increased diagnostic and therapeutic precision has surely made a huge difference to millions of people's lives. In this respect, imaging modalities such as MRI and CT can themselves be considered major developments in healthcare. MRI has seen many significant improvements over the last few decades, not least, in many cases anyway, due to mathematical discoveries such as compressed sensing.

Outside of work ...

My family, their hobbies, as well my own hobbies keep me rather busy after work. For example, I like making things such as dresses, bags, jackets, the more technically demanding the better. I also get a kick out of fixing and refurbishing smart phones and tablets, lately I tackled a drone. In order to keep myself physically fit I regularly attend pilates classes and I love cycling, swimming, or going for long walks. I especially like competing with relatives in step-counting challenges. Last but not least, I think there's nothing like getting stuck in a good book. I've just finished reading J.M.G Le Clézio's latest novel "Bitna, sous le ciel de Séoul" and am currently having trouble putting down Benedict Well's book "Vom Ende der Einsamkeit" ("The End of Loneliness").