

Mary O'Donnell

Picking science can be a journey of discovery

"IN terms of inspirational figures, no one in physics comes close to Einstein," says Cormac O'Raifeartaigh the author of the well-known science blog Antimatter, and lecturer in physics at the Waterford Institute of Technology.

Warming to his subject, Cormac adds that Einstein's philosophical and thought-filled approach to physics led to many astonishing discoveries. "It's truly amazing that one person could make so many fundamental contributions in so many different areas. Not so much a Mozart as Mozart, Bach and Beethoven all rolled into one."

Cormac is a science ambassador for the Discover Science and Engineering programme and believes that a basic understanding of science should be part of every child's education.

"I'm passionate about science and its importance in our lives and our society and my ideal job would be Professor for the Public Understanding of Science!

"I really believe that communicating science to the public is terribly important. Sometimes it can be difficult for the general public to know who to listen to, and there is a real danger that important debates are dominated by vested interests and the loudest voices," he said.

"I think that professional scientists have a duty to be more active in communicating estab-

lished facts. It helps people to understand the wider issues and to learn about the tough decisions faced by democratic governments on everything from public health issues to combating climate change."

His own secondary education took place at Colaiste Eoin, the well-known Irish-speaking school in Stillorgan, Dublin. Although he found languages and music far easier than science in school, he also chose physics and chemistry for his Leaving Cert.

Challenging

"I certainly found maths and science quite challenging, because they are intuitive subjects, they are probably easier to learn in your first language! That said, even in school I liked the big ideas of science. The idea that electrons orbit the atomic nucleus much like the planets orbit the sun really appealed to me and I found it fascinating that a telescope pointed at the stars looks back in time as well as outward in space. To this day, I

believe that science requires great imagination rather than mathematical ability," says Cormac.

"In college, I enjoyed the all-round nature and broad choice of subjects in my undergraduate science at UCD. Physics soon emerged as the most appealing science subject, I liked that it was about basic ideas and out-there stuff that really forced you to think, like quantum theory and relativity.

"No one pushed me into science, although it was in the family as my father was a well-known physicist. Having chosen my speciality, I finished my studies with a BSc (Hons) in experimental physics and went on to study for my PhD in

Trinity College.

"For me, physics has two sides: mathematical (theoretical physics) and experimental. The theoretical side is really restricted to those who are truly gifted mathematically, so I ended up an experimentalist! That said, I've always maintained an interest in the underlying theory, especially in areas like cosmology (the study of the origin and nature of the universe) and particle physics (the study of the fundamental building blocks of matter).

"Why should anyone study science? It's hard to imagine a field more important than the study of the natural world. In fact, I think a basic understanding of science should be part of every child's education.

"Also, the methods and techniques used to investigate and discover scientific facts are almost as important as the facts themselves.

"At college level,

studying science opens up a great range of choices, from organic chemistry to theoretical physics. The job prospects are good, too - physicists in particular are in huge demand in the IT, finance and electronic sectors.

"Although Ireland needs scientists and engineers, it can be difficult to encourage young people into these careers. At Waterford Institute of Technology (WIT), CALMAST (the Centre for Advancement of Learning of Maths, Science and Technology) does great work in bringing science to young people, from public lectures to science fairs," Cormac says.

"In terms of job satisfaction, I enjoy the teaching aspect of academic life. In fact, I suspect I'm a better teacher and communicator than I am a scientist! In WIT, I teach introductory courses in exciting subjects like cosmology and particle physics. I find these very interesting and it's great fun teaching the basic concepts to new students.

"I find the ideas fascinating, but have to work hard to understand them myself, so I'm very focused on ensuring my students understand the basic ideas.

"Teaching also helps me keep in contact with areas of science outside my own research area. The best part of academic life is that it is varied and self-directed. Some academics prefer to concentrate on technical research, others on teaching. In my own case, I've recently taken a break from technical research to focus on a third area - communicating science to the public.

"I concentrate on communicating the ideas of science to adults through public lectures, articles in newspapers and magazines and my science blog Antimatter. With more than 200 hits a day, the blog has turned out to be a surprisingly effective way to speak to a large audience about science. Working on the blog is very satisfying and relatively easy to do, perhaps I was always meant to be a writer after all!"

