

The Institute of Psychics?

At the turn of the millennium I started working for the Institute of Physics, as its representative in Ireland. It was an organization I had not come across before – not that surprising given that I had not studied physics at university – so I was on a steep learning curve with all things physics. The first and foremost problem I encountered was that, from then on, *everyone* I met thought I was a physicist. Here is an example of how introductions might go.

“Hello, I’m Alison Hackett, the Institute of Physics’ representative in Ireland.”

“A physicist? Wow!”

“No, actually I’m not a physicist by training.”

“So what did you study then?”

“Mathematics and economics.”

“Aaah...you’re a *mathematician* then.”

Strangely, it is never “Aaah...you’re an *economist* then”. And being classified as a mathematician is even more terrifying than masquerading as a physicist. The mathematics I studied as an undergraduate is now a complete mystery to me. This was confirmed when, just before throwing out my old college notes, I took a final look at them. Could I really have understood things like triple integrals, eigenvalues, group theory and topological spaces?

The question of where maths and physics are embedded in science, and when one becomes the other, is an intriguing one. It is neatly encapsulated by an observation that a student was overheard making to his supervisor. “I started out studying biology,” the student said. “After a while, I realized that biology is actually all chemistry. I then studied chemistry, and after some time found that chemistry is really all physics. I then discovered that, in fact, physics is all maths...and maths is *really* hard!”

One of the toughest initial challenges I faced was getting to grips with the language and jargon of physics. The horrific prospect that I might talk to physicists about astrology rather than astronomy weighed heavily on my mind. “What is your area of research?” I innocently asked a physicist in one of my first weeks on the job. “Atomic physics,” he replied, to which I responded enthusiastically, “Oh, so you must go out and work in CERN.” Imagine my embarrassment when he gently explained to me, “No, I work *outside* the atom, not *inside* it.” As time went on I also learned that asking a postgraduate physicist about their doctoral thesis was generally not a wise move. In such situations I was lucky if I understood any words at all in the reply – and even then these were usually conjunctions or prepositions!

Now, however, after eight years working among physicists, I have a store of handy conversation openers for non-physicists who find themselves seated beside a physicist at dinner. To the particle physicist: “Have you found the Higgs boson yet?” or “Is the Large Hadron Collider finished yet?” (this will be topical up to at least some time later this year). To an atomic/molecular/plasma physicist: “How was your time on the synchrotron/laser?” For astronomers, the question to ask is “Were the skies clear during your time on the telescope?”. A theoretical physicist might respond well to “How close are physicists to a grand unified theory?”, while most physicists you can ask “Could any of your results be related to a quantum effect?”. Finally, if truly desperate, you could try “Did you know that Institute of Physics is an anagram for PS it’s the fusion city?”.

Communications and outreach are a significant part of



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many of the physics activities in which I am involved. Working in physics outreach is a bit like working in an “understanding physics” casualty department – anything and everything can come through the door. At a recent school event, for example, we set up a system that was comprised of goal nets and a radar detection system. Primary-school students took a shot at goal and the speed of the ball was displayed with the aid of the radar gun. My colleague tried to encourage one young student to think about the units we might use for measuring speed.

“So,” he asked, “what speed do you think that your Mum would usually drive the car at?”

“About 80” the student replied, after a pause.

“80 what?”

“Kilometres.”

“So, she goes 80 kilometres. But 80 kilometres per what?”

“Huh?”

“How long do you think she would take to go 80 kilometres?” Another pause for deep thought.

“About an hour and a half,” the student eventually concluded. At this point my brain was starting to feel taxed by the mental gymnastics involved in multiplying 80 by two-thirds! But it did suggest a perfect political solution to tackling speed – forget about changing the speed limits, just change the units to kilometres per hour and a half.

This is not the only physics curve ball I’ve met while at work. Every year I organize an Institute of Physics display at a careers conference where thousands of school students and guidance counsellors come to gather information. And every year, without exception, at least one person has approached the stand and the following scenario has unfolded. A few moments pass while they contemplate our banner at the top of the display, and then they look at me and say “The Institute of Psychics? What do you do?” The best response I have come up with to this peculiar question is to look up at the ceiling for a moment, frown a little, and then say with gravitas “I just *knew* you were going to ask me that.”



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