

# IRCSET

## for success

Three of the successful applicants for IRCSET funding speak about how it helped them achieve their ambitions.

**Dana Miller (27)**  
**IRCSET Awardee 2008**  
**Research Topic: Ireland's seafood industry: working towards sustainability**

**M**y research is about the sustainability of Ireland's seafood industry and how the industry and our eating habits are influencing the marine environment.

I'm Canadian and studied marine biology at the University of British Columbia. In 2008, I received IRCSET funding to pursue my PhD at UCD's school of Biology and Environmental Science under Dr. Stefano Mariani.

My research looks at the long-term records in fisheries landings by both Irish and international vessels in Irish waters, the market availability of seafood here over the last century, the mislabelling of seafood and how that links into patterns of consumption and production over the last century.

One of the most important things we've discovered is that catches and landings of some of the most commercially important fish here have declined substantially over the last century.

Cod is by far the most popular white fish available in the Irish market, however the amount of cod caught and landed in Ireland has declined by 90% since reaching a peak in the 1980s. The commercial fishery of salmon is basically closed in Ireland since 2007.

The surprising thing is that, though Irish vessels in Irish waters are catching little of



these two fish, they are highly available in the marketplace – so there's a mis-match between what's being caught and what's being sold.

The result is that the decline in wild fish is being concealed from Irish consumers by imports and by farmed fish.

We've also identified a mislabelling problem – a lot of the cod that's being consumed in Ireland is not actually cod.

I wouldn't have been able to take part in this research were it not for IRCSET's support.

The IRCSET funding is great because it gives you such freedom - if your research takes a certain direction, you can follow that direction.

I think the lessons from this research are that it's important for consumers to ask questions. It also highlights the responsibilities of policy makers.

The freedom in this funding has been the biggest benefit to me. It's just fantastic.

**Domenico Pepe (31)**  
**IRCSET Awardee: 2010**  
**Research Topic: High-speed wireless communication**

**I**n simple terms, my research is about designing microchips that will enable high-speed wireless communication.

For the person on the street, it might mean being able to watch a movie in high definition on their phone, but it has many other applications too.

I'm based at the Tyndall National Institute in Cork. I studied electronic engineering at the University of Pisa in Italy where I completed my PhD. I came to Tyndall two years ago and it really is one of the best research institutes in Europe.

Microelectronic circuit design is a significant part of Ireland's GDP and Ireland has a long history of expertise in the area. A few years ago, Tyndall identified the opportunity to develop expertise in next generation high-speed communications. IRCSET's funding is enabling me to further that opportunity.

My supervisor Prof Domenico Zito supported me to apply

for the funding and receiving it has given me the opportunity to pursue internationally competitive research in a leading research group.

My project proposal was aimed at exploring microelectronics, focusing specifically on high-speed wireless video communication. The research has the potential for huge mass-market applications in areas like medical imaging, environmental remote sensing, and collision avoidance radars.

My work entails designing microchips that enable the very high-speed transfer of data between devices in a wireless way. The chips that we design and test are very small, just a few square millimetres, so they can be installed in any portable device.

With IRCSET's support, I've been able to travel to workshops and conferences in Ireland, Portugal and Switzerland to meet



and work with international experts.

This post-doctoral work has enabled me to both further my skills and consolidate what I learned in my PhD. I've also had the chance to collaborate closely with academics and industry experts.

I hope my work will help to progress the Tyndall Institute and Ireland towards increasing competitiveness.

I have one more year of IRCSET funding left. After that I would like to continue my research and I'm very open to doing that in an industrial environment.

**Aisling Ní Annaidh (26)**  
**IRCSET Awardee 2008**  
**Research Topic: The mechanics of stabbing**

**M**y research is about the mechanics of stabbing and it came about through collaboration with the Office of the State Pathologist.

A problem for pathologists is that when giving court evidence in murder trials involving a stabbing, they are often asked what kind of force would be needed to cause the wound. They might answer that it was 'a considerable force' or 'an extreme force'. My project aims to calibrate that force to a recognisable scale.

I'm looking at quantifying how much force somebody would need to exert to cause a stab wound. Knowing this will help us say more accurately whether the stabbing was deliberate or accidental.

It's really about trying to move a pathologist's evidence from a qualitative, descriptive thing into a more scientific and

quantitative result.

I studied mechanical engineering at UCD. My final year project was in bioengineering, which I loved and that's how I got started in this field.

I heard about the IRCSET PhD funding and with this collaboration with the State pathology lab in mind, my lecturers encouraged me to apply.

I'm in the third year of my PhD now under Prof. Michael Gilchrist and Dr Michel Destrade and my research would not be possible without IRCSET's support.

My first two years were spent at UCD and I spent last year in Paris at the Université Pierre et Marie Curie. With IRCSET's support I've also travelled to Lyon where I've been able to conduct tests on human skin through people who have donated their bodies to science.



Doing a PhD really expands your knowledge. You have to be one of those people who are willing to go out and work independently.

I'm hoping to finish my PhD this year. In terms of bringing my research into reality for the good of society, it would be great to see some of my work used by the State Pathologists.

And it's not just in Ireland; if I do come out with some significant results, my research could be used worldwide. That would be really exciting and would make it all worthwhile.