



# SUPER SCIENCE PhD POSITION AVAILABLE

## Research & Development of exposed-core microstructured optical fibres for novel sensing applications

This exciting, multi-disciplinary project in the fast-growing and well-funded research environment of the Institute for Photonics & Advanced Sensing (IPAS) offers the student to gain a **PhD in Physics / Materials Engineering**. The project aims to develop and improve exposed-core microstructured optical fibres, which is a new fibre type that is specifically tailored for novel fibre optics sensor platforms. The development and characterisation of this new fibre type involves research experience & training in key technology areas such as:

- Design & modelling of exposed-core microstructured optical fibre structures that are *specifically tailored* for novel fibre optical sensing architectures (i.e., optimization of fibre geometry to support and enhance specific optical sensing strategies).
- Improvement of existing and development of new fibre fabrication techniques (e.g., extrusion, drilling, etching) for the manufacture of exposed-core fibres from a range of glasses (e.g., lead-silicate, tellurite, silica).
- Modelling and understanding of fluid-mechanical processes during extrusion and fibre drawing to counterbalance deformation processes and optimise fibre geometry.
- Modelling and understanding of the impact of glass corrosion, glass type, surface roughness and other factors over the whole fabrication processes on the propagation loss of exposed-core fibres.
- Characterisation & testing of the developed exposed-core fibres in state-of-the-art sensing architectures.

The new postgraduate student will work closely with A/Prof. Heike Ebendorff-Heidepriem (Deputy Director CoEP), Prof. Tanya Monro (Director of IPAS) and Dr. Florian Englisch (ARC Super Science Fellow) on this novel project.

A generous PhD scholarship top-up (\$ 10,000 per annum) is available for a new PhD student interested in doing material science & physics research at the Institute for Photonics & Advanced Sensing (<http://www.adelaide.edu.au/ipas/>) at the University of Adelaide.

Applicants must have, or expect to obtain, a PhD scholarship and should be interested in the areas of Physics, Optics, Engineering, Material Sciences (including Fluid-Mechanics & Modelling) as well as “hands-on” experimental research.

Please forward your expression of interest including a CV to A/Prof Heike Ebendorff-Heidepriem ([heike.ebendorff@adelaide.edu.au](mailto:heike.ebendorff@adelaide.edu.au)) or Dr Florian Englisch ([florian.englisch@adelaide.edu.au](mailto:florian.englisch@adelaide.edu.au)).