



## IPAS Appoints a Deputy Director



IPAS welcomes Dr Peter Hoffmann into the role of IPAS Deputy Director. Peter is the Director of the Adelaide Proteomics Centre, located in the MLS Building.

Peter's leadership and experience in the field of proteomics and his

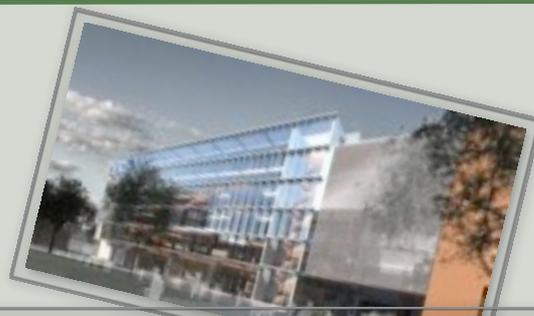
engagement across chemistry & biology research and teaching will enable us to drive forward IPAS's agenda to engage more strongly with chemistry and biology and stimulate the growth of research capacity and outcomes in these areas. His experience in working on transdisciplinary projects spanning physics, chemistry & biology will also help us to grow further interactions of this type within our membership.

## illumin8 - Building Update

Work is well underway on the construction of the University's new illumin8 project which will be the headquarters for IPAS.

The ground and first floors are starting to take shape.

The project is on schedule for completion in early 2013. [View the computer animated fly through of the new building.](#)



# Talking Papers, Series #1:



## *'Printing' Lasers as Tools for IPAS Research*

*Brought to you by Mr Mike Seyfang*

A regular series titled 'Talking Papers' will be published on the [IPAS blog](#). The first paper being discussed is *'Printing' Lasers as Tools for IPAS Research*.



Recent work published by IPAS senior researcher David Lancaster brings the team a step closer to being able to 'print' (or burn / write) highly specialised lasers required for further research into a wide range of photonics and advanced sensing technologies. With the right kind of industry partner, this work could lead to extremely fast and cheap ways to fabricate lasers for the mass market.

[View the full article on the IPAS blog.](#)

[Listen to Prof Tanya Monro and A/Prof David Lancaster discuss the interesting aspects of this paper.](#)

# Talking Papers, Series #2:

## *A new platform for ion sensing in small volumes*



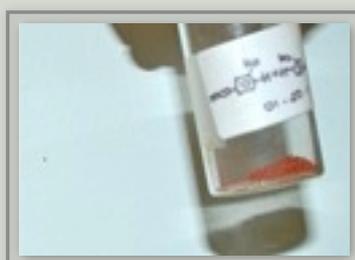
The second paper being discussed is *"Fluorescence-Based Aluminum Ion Sensing using a Surface Functionalized Microstructured Optical Fiber"*. This paper delivers on Professor Monro's vision of new platforms for sensing that push the boundaries of what can be done with extremely versatile micro-structured optical fibres when researchers take a transdisciplinary approach. It is well known that these fibres have the potential to deliver results in real-time, *in-situ*,

paper combines commercially available chemicals with micro-structured fibres in a way that retains the useful characteristics of each, thus paving the way for a new platform in (ion) sensing.

I spoke to two of the paper's authors and IPAS director Professor Tanya Monro to find out more about the achievements and challenges in this important quest.

[See the full article on the IPAS blog.](#)

[Listen to the audio recording](#)



by directly accessing tiny volumes of fluids smaller than those typically found in living cells. The work done for the



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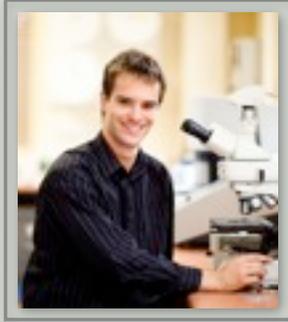


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# IPAS In the Media

## *South Australian Science Excellence Awards*



Congratulations to Dr Stephen Warre-Smith who was announced as the winner of the [2011 South Australian Science Excellence Award](#) in the category of PhD Research

Excellence – Physical Sciences on 3 November 2011.

Stephen was acknowledged for his outstanding work in the field of optical fibre sensing for use in the detection of corrosion in aluminium alloys. He was awarded \$10,000 to use towards his research.

Also congratulations to Dr Kristopher Rowland for making the finals. Kris' research area is 'Demonstrating a new way of making hollow core optical fibres, using an extrusion technique to turn pieces of 'soft' glass into thin strands'.



The Science Excellence Awards is South Australia's premier event to recognise and reward outstanding scientific endeavour, including its application in industry and the advancement of science and mathematics education.

## *Tall Poppy Awards*



Congratulations to Dr Tara Pukala who won one of eight South Australian 2011 Tall Poppy Awards. The awards were announced on 25 August at Government House. The Tall

Poppy Campaign aims to recognise and celebrate intellectual and scientific excellence in South Australia's young researchers.

Science and Information Economy Minister Jay Weatherill said, "The Tall Poppy Award winners demonstrate the breadth of talent we have in South Australia among our science community. They will inspire students to pursue careers in science, technology, health, engineering and mathematics."

## *Prof Tanya Monroe: 2011 Scopus Young Researcher of the Year in Physical Science*

Congratulations to Prof Tanya Monroe who has won the [2011 Scopus Young Researcher of the Year](#) in Physical Science award.

Please see the article '[Lighting up Invisible Problems](#)' from The Australian, including video interview of Tanya.

Tanya was presented the award in Sydney Friday 16 September.



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## *Prof Tanya Monro, finalist in the CSIRO Eureka Prize for Leadership in Science*

Prof Tanya Monro, Director of IPAS was announced as a finalist for the CSIRO Eureka Prize for Leadership in Science. The prize recognises Australian individuals who demonstrate an outstanding role and impact in science leadership.



## *Prof Andrew Abell launches Calpain Therapeutics to commercialise cataract drugs*



Prof Andrew Abell and his collaborator Dr Tim Lovell have launched a new company, Calpain Therapeutics. The company is currently commercialising a world-first drug to slow cataract growth and to delay cataracts from forming.

Currently there are no drops or medications to prevent or reverse cataracts. The only treatment is to have the cloudy lens surgically removed and replaced with a synthetic lens.

Andrew and his partners have been working for the past decade on the class of compounds involved in the drug.

Calpain Therapeutics has been named as one of five finalists in The University of Queensland (UQ) Business Schools \$100,000 Enterprize business plan competition.

Finalists will be interviewed by the expert judging panel on 16 September and will then have their final chance to impress the judges at a Pitch Day in October, to be attended by venture capitalists and angel investors, when the winner will be announced. [Full article.](#)

## *Australian of the Year Tour of Honour*

Prof Tanya Monro participated in the 'Australian of the Year Tour of Honour' along with Jessica Watson, Young Australian National Winner, Jack Buckskin, SA Young Australian and Peter Goers, South Australia's Local Hero. The award winners shared their unique message to South Australian students to show that anything is possible if you dream big.



The tour went over the 8th and 9th of August and took them to Hallett Cove R-12 School, Brighton Secondary School, Adelaide High School, The Department of Education, Roma Mitchell School and Norwood Morialta High School.



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## *ABC Science - 'Prof Dennis Taylor Oenologist and Wine Chemist'*

IPAS researcher Prof Dennis Taylor is working to ensure the wine you drink is as good as it can be without draining your wallet. His interview was captured on 19 July in ABC Science. [Full article.](#)



## *IPAS Members Awarded \$1.7M by ARC*

Congratulations to IPAS members Andrew Abell, Christian Doonan, Tanya Monro, Chris Sumbly and Dennis Taylor who were awarded over \$1.7M in ARC Grants on 1 November.

This included three Discovery Projects, one LIEF Project and one Linkage Project. The

projects spanned the development of new sensing technologies for wine production, defining peptide structure for cataract, Alzheimer's disease, cancer, and cardiovascular disease, genetic evolution, nanoporous material development, nanodiamond in glass for nanosensing, and X-ray diffraction equipment.



## *IPS Success in over \$2M ARC grants led by other Universities*

In addition to the grants won by the University of Adelaide, Gavin Rowell, Jesper Munch, and Tara Pukala were key members in projects administered by other Universities. This included 2 discovery projects and two LIEF

projects. The projects spanned dark gas and the formation of molecular clouds, optical springs in high power optical cavities, the nanten2 submillimetre telescope and super computing facilities.



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# Dating of Meteor Impact Glasses

Prof Nigel Spooner and his team in Environmental Luminescence are testing the feasibility of directly dating meteor impacts by using luminescence from the melt glasses produced by an impact. They are currently investigating two samples; black glass formed in an iron-nickel meteorite impact that produced the Wabar Crater in the “Empty Quarter” of Saudi Arabia, and a portion of Libyan Glass (greenish) found in an 80 x 25km field formed by a meteor impact into a sand dune. The Libyan Glass is believed to be the purest natural glass known (98% SiO<sub>2</sub>). This work is being performed as part of the MSc project of Badriah Alanazi, and in collaboration with Dr Allan Pring, Head of Earth Sciences, Mineralogy & Meteorites at the SA Museum.



## IPAS Visiting Speakers

IPAS continues to build collaborations with academic teams around the world. In the past quarter we have been fortunate in hosting the following speakers:

Date	Speaker	Institute	Talk Title
26 July 2011	<b>Dr Claire Davis</b>	Air Vehicles Division of DSTO	Smart Structures and Advanced Diagnostics at the Australian Defence Science and Technology Organisation (DSTO)
12 August 2011	<b>Prof Ewa Goldys</b>	Division of Information and Communication Sciences, Macquarie University, NSW	Data mining of cellular images
2 September 2011	<b>Prof Frank Tittell</b>	Rice Quantum Institute, Rice University, Houston, TX, USA	Infrared semiconductor laser based trace gas sensor technologies; recent advances and applications



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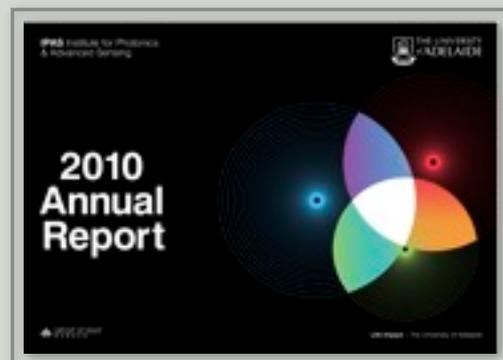


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# 2010 Annual Report

After our first full year of operation, we have captured our year's activities within an interactive [2010 annual report](#) now available for download. For all the inside information on IPAS in 2010, interact with it now!



## New IPAS Brochures and Flyers

IPAS has updated its range of printed material including a brochure about our Institute, a flyer on the Silica Fibre Fabrication facility and detailed flyers on our 6 research themes:

- Optical Materials & Structures
- Lasers & Nonlinear Optics
- Surface Science & Synthetic Chemistry

- Chemical & Radiation Sensing
- Medical Diagnostics & Biological Sensing
- Remote Sensing

We have hard copies in the office. If you would like a hard copy, please contact us to post one out to you, or you can download them online at the [IPAS website](#):



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