

# Workshop Program

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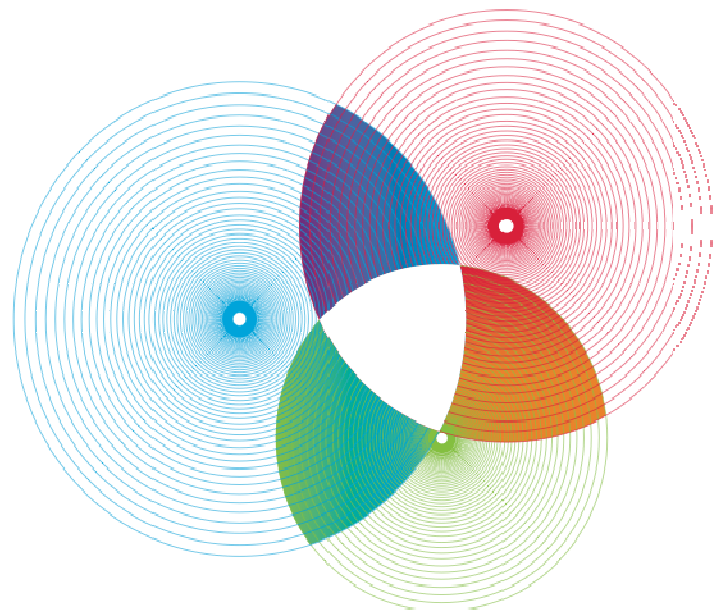
Nanophotonics for sensing & nonlinear optics:

Next generation photonic materials, structures & devices

**24-26<sup>th</sup> August 2011**

Serafino, McLaren Vale, South Australia

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**Thank you to the following Sponsors who helped  
make this Workshop possible**

**Italian Embassy in Australia**

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**South Australian State Government**

**Dept of Innovation, Industry, Science and Research (DIISR)**

**Australian Nanotechnology Network (ANN)**

**Institute for Photonics & Advanced Sensing (IPAS) –**

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## **Tuesday, 23 August 2011**

**19:00** Bus for Workshop participants departs for Serafino, McLaren Vale, from University of Adelaide, North Terrace

**20:15 – 21:00** Check in to accommodation and Workshop Registration desk open

## **DAY 1 - Wednesday, 24 August 2011**

**09:00 – 09:05** **Prof Tanya Monro**  
*Workshop Welcome*

### **Session 1 – Photonic Platforms 1 – Session Chair: Prof. Laurie Faraone**

**09:05 – 09:25** **Prof Tanya Monro**  
*Overview of IPAS's Nanophotonics research*

**09:25 – 09:45** **Prof Chennupati Jagadish**  
*Semiconductor nanowires for optoelectronic device applications*

**09:45 – 10:05** **Dr Andrew Greentree**  
*Diamond for quantum photonic applications*

**10:05 – 10:25** **Prof Laurie Faraone**  
*Optical MEMS technologies for multi-spectral infrared sensors and arrays*

**10:25 – 10:45** **Prof Francesco Prudenzano**  
*Modelling of optical sources and waveguides for sensing applications*

**10:45 – 11:10** **Morning Tea**

### **Session 2 – Photonic Platforms 2 – Session Chair: Prof. Chennupati Jagadish**

**11:10 – 11:30** **Dr Paolo Bettotti**  
*Silicon Nanophotonics*

**11:30 – 11:50** **A/Prof Heike Ebendorff-Heidepriem**  
*Pushing the limits in soft glass properties and fibre fabrication*

**11:50 – 12:10** **Dr Francois Courvoisier**  
*Femtosecond laser nanofabrication with nondiffracting beams*

**12:10 – 12:30** **Dr Yinlan Ruan**  
*Nanoscale control of light as a new tool for manipulating nanoparticles*

**12.30 – 13:30** **Lunch - Serafino's Courtyard Restaurant**

### Session 3 –Chemistry and Radiation Sensing –

Session Chair: Dr Andrew Greentree

- 13:30 – 13:50**     **Prof Francesco Baldini**  
*Nanophotonics for chemical and biochemical sensing at IFAC*
- 13:50 – 14:10**     **Dr Chris Sumbly**  
*Functionalised surfaces for sensing, separation and catalysis*
- 14:10 – 14:30**     **Dr Ambra Giannetti**  
*Modified nanostructures for pH sensing*
- 14:30 – 14:50**     **Mr Erik Schartner**  
*Sensitive fluorescence detection schemes in microstructured fibres*
- 14:50 – 15:10**     **Dr Andrew Richardson**  
*A PET-based cation sensor in microstructured optical fibre*
- 15:10 – 15:30**     **Afternoon Tea**

### Session 4 – Biosensing 1 – Session Chair: Dr Jin Dayong

- 15:30 – 15:50**     **Prof Stefano Selleri**  
*Optical fiber platform for the detection of biological components*
- 15:50 – 16:10**     **Dr Alexandre Francois**  
*Surface plasmon resonance scattering fibre sensors: demonstration of applications from virus to enzyme detection*
- 16:10 – 16:30**     **Dr Jin Dayong**  
*Luminescent lanthanide nanoparticles for biophotonics sensing*
- 16:30 – 16:50**     **Dr David Inglis**  
*Protein concentration and separation in nanochannels for biosensing*
- 16:50 – 17:10**     **Prof Marc Verelst**  
*New mineral and hybride nano-phosphors for biological applications*

### Session 5 – ECR/Student Poster Presentations

- 17:30 – 18:30**     Two minute brief poster introductions
- 18:30 – 19:00**     Poster viewing and drinks/nibbles

**19:00**                 **Buffet Dinner – Serafino’s Courtyard Restaurant**

**Day 2 – Thursday, 25 August 2011**

**Session 1 – Lasers and new sources/Nonlinear optics –  
Session Chair: Dr Peter Domachuk**

- 09:00 – 09:20 Prof Johann Troles**  
*Chalcogenide microstructured optical fibers for mid-infrared applications*
- 09:20 – 09:40 Prof Frederic Smehtala**  
*Microstructured optical fibers from As<sub>2</sub>S<sub>3</sub> glass for fiber optics sources in the MIR range*
- 09:40 – 10:00 A/Prof David Lancaster**  
*New classes of planar and fibre lasers for short to mid-infrared*
- 10:00 – 10:20 Dr Shahraam Afshar**  
*Soft glass nano and micro structured optical fibres: New opportunities for nonlinear devices*
- 10:20 – 10:40 Mr Benjamin Wetzel**  
*Rogue waves in optics: new frontiers in the science of nonlinear waves*
- 10:40 – 11:15 Morning Tea**

**Session 2 – Biosensing 2 – Session Chair: Dr Jim Piper**

- 11:15 – 11:35 Dr Peter Domachuk**  
*Silk photonics: Unnatural uses for a natural material*
- 11:35 – 11:55 Dr Ewa Goldys**  
*Fluorescence amplification - from concept demonstration towards integration with laboratory practice*
- 11:55 – 12:15 Dr Federica Poli**  
*Fiber Bragg Gratings for label-free detection of biomolecules*
- 12:15 – 12:35 Dr Kristopher Rowland**  
*Biosensing with whispering gallery modes*
- 12:35 – 12:55 Dr Severine Lechvallier**  
*Luminescent nanoparticles as bio-labels*
- 12:55 – 14:00 Lunch - Serafino's Courtyard Restaurant**

**19:00 Workshop Dinner – Serafino's Courtyard Restaurant**

**Day 3 – Friday, 26 August 2011**

- 09:00** Bus departs from Serafino McLaren Vale and returns to University of Adelaide
- 10:00 – 11:00** Tour of IPAS laboratory facilities
- 11:00** Workshop concluded