



## FUTURE FELLOWS

The announcement of four ARC Future Fellows to be based within the University of Sydney's School of Physics has added to what has been already a highly successful year in 2010 for the School.

A/Professor Peter Tuthill, Professor Geraint Lewis, below, and Dr Scott Croom, are astronomers based within the School's Sydney Institute for Astronomy (SIfA).

The fourth Fellow is Professor Kostya Ostrikov, based at CSIRO, for his research into nanoscale control of energy and matter for future energy-efficient technologies.

Professor Tuthill, who is the Director of SIfA, said it was an encouraging sign that so many astronomers based at the University of Sydney were acknowledged for their high-level research especially as the three Fellows now make a total of six Future Fellows in Astronomy alone.

"As Director of the Sydney Institute for Astronomy (SIfA), I am really delighted with this result. Three successful fellowships here from a total of only nine astronomy fellows nationwide is an outstanding result."

The Fellowships follow on the heels of SIfA's recent success with the CAASTRO Centre of Excellence (led from here by Laureate Fellow Professor Bryan Gaensler), SIfA is certainly one of the most exciting places to be in the astronomy community worldwide."

Future Fellowships promote research in areas of critical national importance by giving outstanding researchers incentives to conduct their research in Australia, the aim being to attract and retain the best and brightest mid-career researchers and to significantly boost Australia's research and innovation capacity in areas of national importance.



## ARC LINKAGE GRANT

Professor Ben Eggleton, above, Director of CUDOS, an Australia Research Council (ARC) Centre of Excellence, headquartered at the University of Sydney, said he was thrilled with the announcement that the University was the recipient of an ARC Linkage Infrastructure, Equipment, and Facilities Grant.

"This grant will enable us to assemble a leading-edge optical communication facility for testing the building blocks in next generation optical fiber networks", Professor Eggleton said.

"Five years ago when I spoke about optical applications such as e-health people rolled their eyes but with the capabilities provided by the NBN, people now know it's a reality."

"Our facility is a cornerstone piece of national infrastructure to support on-going research in this area". Eggleton says the support of the ARC is an investment in Australia's technological future enabling Australian researchers in industry and academia to develop and test revolutionary optical signal processors operating at data rates unimaginable a few years ago.

"That's one of the principal missions of our new Centre of Excellence, and this facility will provide the infrastructure to validate our work" Eggleton says that with the new facility, CUDOS researchers will have access to ultrahigh bit rate (terabit per second) signals encoded with more spectrally efficient data modulations formats.

"This will give us a more energy efficient and broader bandwidth Internet. Not only will you be able to move data around faster, but with less energy consumed.

The ARC Grant will help support CUDOS and collaborating organisations and enhance its interactions with industry leaders such as Finisar.

Terabit per second corresponds to 1000 Gigabits per second or 1 million Megabits per second. This corresponds roughly to the internet traffic that will be in the core of the next generation network.

The so-called Terabit per second grand challenge project aims to develop photonic signal processing that will enable energy efficient processing in these next generation networks.

"This is a wonderful opportunity for cutting edge research to be fully developed within Australia," says Eggleton adding, "We're training and preparing the future drivers of the NBN."

