

# CUDOS

The Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS)



## 2005 Annual Report



## CUDOS Workshop

The CUDOS workshop is the annual opportunity for all CUDOS researchers to gather and present their research. This year the workshop was held at Macquarie University with over thirty contributed papers, including invited presentations from Professor Rod Tucker (Melbourne University), Dr Steve Duvall (Intel Fellow) and Alasdair McInnes (DSTO), and twenty six poster presentations. Most of the first day was given to presentations relating to the Flagship projects. It was exciting to see the range of activities across all five Universities that are contributing to the success of these projects.

The Workshop provided a perfect venue to announce the winners of the inaugural student CUDOS competition, Steven Morrison of the ANU and Neil Baker from Sydney. Details of the competition are given in the Education and Training Section of this report.

## Collaboration

Collaboration continues to be a feature of the CUDOS program. Last year I was proud to report that over 20% of our publications had authorship across two or more of the collaborating nodes. This has continued during 2005 and into 2006, with 18% of our publications jointly authored by members of different nodes, and a continuing increase in the number and quality of publications.

## Governance and planning

The Centre continues to benefit from the advice and input of its Advisory Board. Two meetings were held in 2005, with the second being devoted almost completely to discussing future directions for the Centre's research and opportunities for commercialisation. The Advisory Board's advice was an important component in shaping the ideas in our strategic plan presented to the ARC as part of its review of the Centre.

## Centre personnel

I am delighted that Centre researchers continue to receive acknowledgement from the scientific community through awards and honours. Barry Luther-Davies and Lindsay Botten became Fellows of the Optical Society of America while Yuri Kivshar was awarded the Boas Medal of the Australian Institute of Physics. I was honoured with the presentation of the ICO Prize for 2003 at the ICO Congress in China, where I presented a plenary talk overviewing highlights of the CUDOS research program. Our first crop of PhD students are graduating, with eight submitting their theses during the year.

Justin Blows, one of our Chief Investigators, elected to move from a research career to one in patent law and resigned during 2005 to take up an appointment with a large national legal firm. We wish Justin all the best with his new career.

**Professor Benjamin J Eggleton**  
Research Director

# Chairman's Introduction



Simon Poole

On behalf of the Advisory Board, I compliment the Centre on its exceptional performance this year. Under the leadership of Professor Ben Eggleton and his team, the Centre has established itself amongst the pre-eminent international research groups in fundamental microphotonics research. It has achieved this by successfully combining the sometimes conflicting demands of curiosity-driven, fundamental research and mission-oriented strategic research. CUDOS has now built a strong research platform from which it can continue to drive towards its strategic goal of developing technologies for next generation optical communications networks.

The Board was delighted to see the favourable outcomes of the science review in July commissioned by the Centre and of the review in October by the ARC of the Centre's program of research. We strongly endorsed the Centre's strategic plan at our September meeting. It is also extremely gratifying to be able to see the Centre maturing, both through the graduation of its first students and also by the transition of experienced staff from their academic roles into the commercial world.

Whilst the Centre has a clear focus on basic research, its long-term future is as a key part of an Australian photonics community comprising academia, industry and end- users. Developing the linkages to non-academic groups will be an important activity for the Centre over the next few years as its research matures. We expect the first industrial contracts to be put in place in the next 12 months and that such contracts will form an important, although necessarily small, part of the Centre's ongoing activities. It is important, however, to sound a note of caution at this point. From my experience in commercializing photonics, the timescales required to discover, develop and take a new technology to market extend well beyond the initial five year lifetime of the Centre and we should not expect that this initial version of CUDOS will be creating significant commercial activity within its initial five year term. I was therefore delighted to hear of the ARC initiative to allow Centres to apply for extensions to their term of funding and will have no hesitation in supporting CUDOS' application for an extension of its program.

It has been a pleasure to work with Ben and his team this year, and with my fellow Advisory Board members. I welcome Professor Sue Rowley from UTS, who joined the Board during 2005. We look forward to more remarkable progress from the CUDOS team in 2006.

**Dr Simon Poole**  
Chair, Advisory Board