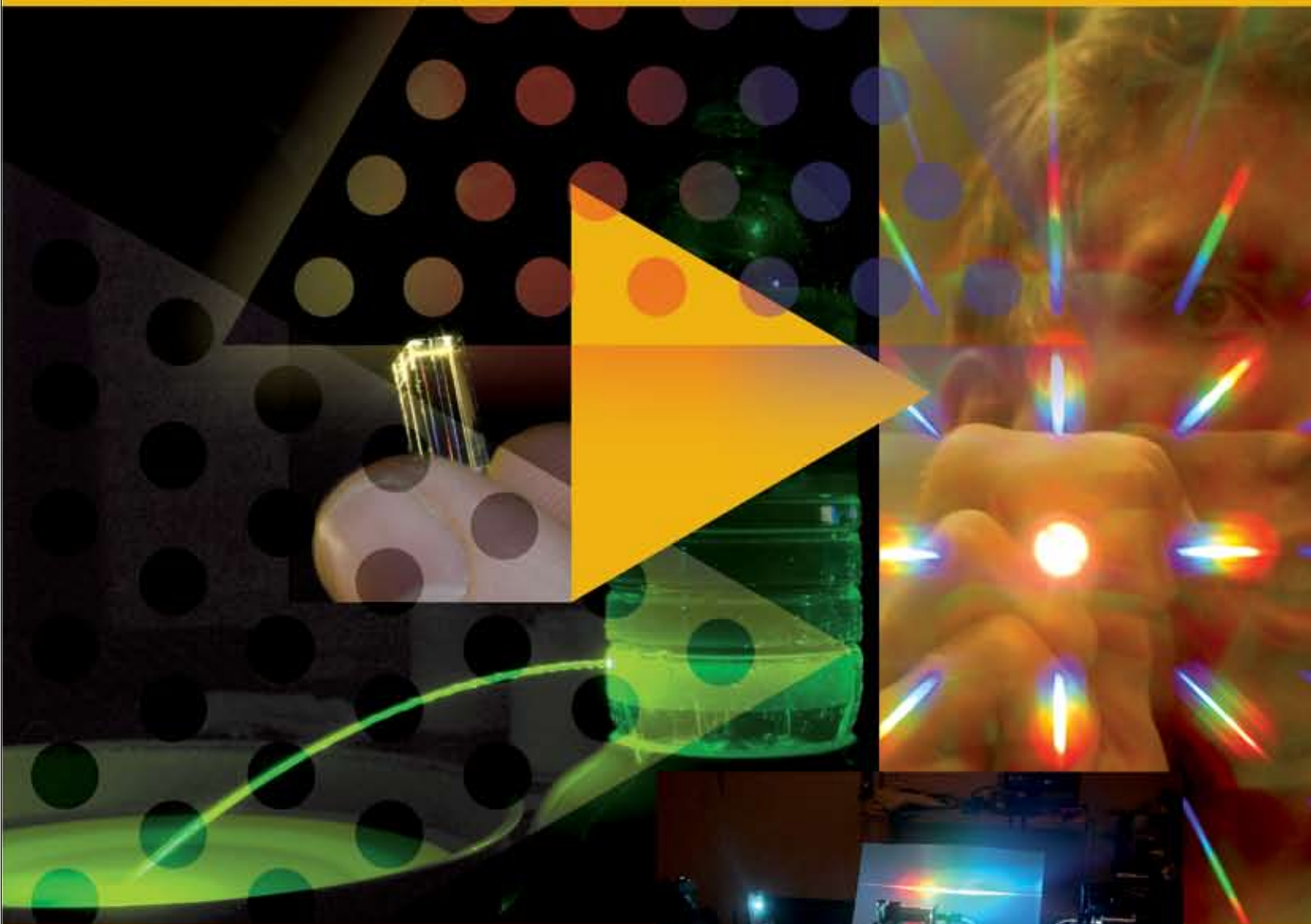




# CUDOS

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



A N N U A L R E P O R T

2006



Professor Jim Piper completed his PhD in atomic physics in 1970 at University of Otago, New Zealand, and from 1971-1975 undertook postdoctoral research in experimental laser physics at the Clarendon Laboratory, University of Oxford, UK. He took up an academic appointment at Macquarie University in 1975 and in 1984 was appointed to the Chair of Physics. In 1988 he was awarded as Chief Investigator the ARC Special Research Centre for Lasers and Applications. He is author or co-author of some 240 international refereed journal articles and full-length conference proceedings, and a further 100 published international conference abstracts, as well as inventor or co-inventor of 12 awarded patents.

Professor Piper has served for several years as a member of Australian Research Council committees including 4 years as Program Manager (International and National Cooperation) and as a member of the Council. He was General Chair of the 20th International Quantum Electronics Conference held in Sydney in 1996, and serves on Program Committees for the leading international conferences in lasers and applications.

Professor Piper has been awarded the Pawsey Medal (Australian Academy of Sciences), Walter Boas Medal (Australian Institute of Physics) and AOS Medal (Australian Optical Society) for his contributions to optics and laser physics and technology. He was elected Fellow of the Optical Society of America in 1994. In 2004 he was awarded the Carnegie Centenary Professorship, Carnegie Trust Universities of Scotland.

Professor Piper's current appointment is as Deputy Vice Chancellor (Research), Macquarie University and was formerly Head of Department of Physics and Dean of Division of Information and Communication Sciences. In 2005 Prof Piper was Chair of the Deputy/Pro-Vice-Chancellor (Research) Committee of the AVCC and served on the AVCC's RQF Working Party and the EAG subcommittee on Quality and Eligibility. He has also served as a Director of a number of proprietary companies and has had significant experience of technology transfer and commercialisation.

## Professor Jim Piper

### CUDOS Research Contribution

Flagship Project: Waveguide amplifier and laser

### Roles and Responsibility within Centre

Chief Investigator.

### Awards, honours, visits

Carnegie Centenary Professorship

Honorary Degree of Doctor of Science from Heriot Watt University

Invited Tutorial CLEO '06

### Description of Research Activities

Piper's research activities in 2006 focussed on building new research links with Scottish Universities as part of the Carnegie Centenary Professorship scheme. Prof. Piper gave a series of high level talks at Heriot Watt University, University of Glasgow and University of Strathclyde. This program included visits to the research groups of Prof. Miles Padgett (University of Glasgow), A/Prof. Ajoy Kar (Heriot Watt University), Prof. Alistair Ferguson (University of Strathclyde), Prof. Alan Miller (University of St. Andrews), Emeritus Prof. Colin Webb (University of Oxford) and Prof. David Payne (University of Southampton). CUDOS related outcomes emerging from this activity include a planned linkage with Prof. Kar's research group on ultrafast laser processing of glasses, and technology demonstrations with Dr Robert Maier (also Heriot Watt) on novel fibre sensing technologies.

Prof. Piper has also piloted a strategy to fund a state-of-the art lithium niobate fabrication plant within the Australian Technology Park under the NCRIS scheme. This plant will be offer small period (down to 4  $\mu\text{m}$ ) quasi-phase matched crystal fabrication capability with integrated waveguides. Technology transfer and training from ex-Stanford University members will complement this arrangement. This fabrication capability will enhance the experimental components within the Flagship Project Tunable Microphotonics.