The Australian National University

Weekly Bulletin

Research School of Physical Sciences & Engineeering

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SCHOOL SEMINARS

Nonlinear Physics Centre Seminar
Wednesday, 18 June
11.00am
by Dr Konstantin Bliokh, ARC International Fellow
"Exotic resonators and wave couplers "
This talk will give an overview of intriguing complex phenomena, attracting a lot of attention in the modern wave physics which can be, however, effectively described by simple models of classical resonators and wave coupling. The talk will discuss (i) surface plasmon-polariton systems, including extraordinary optical transmission, total absorption of electromagnetic waves, and perfect LHM lens, (ii) waves in random media, including Anderson localized modes, and quasi-extended "necklace" states, and (iii) coupled plasmon-polariton and spatial-soliton exotic waveguides.
Link Bldg Seminar Room, Oliphant Bldng
All welcome

CUDOS Seminar
Wednesday, 26 June
11.00am
"Fiber research at DTU Fotonik in 2008"
by Assoc Professor Ole Bang
Fiber Sensors and Supercontinuum Group
DTU Fotonik, Technical University of Denmark
Link Bldg Seminar Room, Oliphant Building
All welcome

STAFF MOVEMENTS

The Nonlinear Physics Centre would like to welcome back Professor Solomon Saltiel, from the University of Sofia in Bulgaria. Professor Saltiel will be working with Dr Dragomir Neshev and Professors Wieslaw Krolikowski and Yuri Kivshar for three months on research on second harmonic generation in micro and nanostructures materials.

The Nonlinear Physics Centre would like to welcome, Dr Etienne Brasselet, a visiting fellow from University of Bordeaux 1 (CNRS) in France. Dr Brasselet will be working with Dr Andrey Miroshnichenko on research on light-induced effects in periodic structures with liquid crystal defects.

Dr M Shats, PRL, will visit the University of California at Santa Barbara from 7-30 June to participate in the Physics of Climate Change Program at Kavli Institute for Theoretical Physics.

BOEING SEEKS AUSTRALIAN INTEREST IN FUSION COLLABORATIONS FOR ITER AND BEYOND

The ANU, through the Australian ITER Forum, been approached by Boeing Phantom works, which is coordinating an international bid for the ITER COntrol Data Access and Communication (CODAC) contract. Boeing is planning to propose an international team for this contract, and would like to scope Australian capability and talent for inclusion, as well as determine the wider possibilities to grow projects with Boeing in fusion control. The detail of Boeing's interest, which is written by staff from Boeing Phantom Works, Missouri (in consultation with Boeing's corporate headquarters, Seattle), is supplied below. I understand Boeing also seeks to explore opportunity for growth in its recently launched Australian branch of Boeing Phantom Works.
http://www.boeing.com.au/ViewContent.do?id=35142
Could I please request anyone interested in participating in an ITER CODAC international team and/or developing a fusion control project with Boeing, please email me a very short description of their, or their groups/ business activities, and how these might be of interest to Boeing (see below).

Boeing staff (including the new Head of Boeing Phantom Works Australia) are considering a visit to the Research School in late July or August, and so there may be an opportunity for interested parties to meet with Boeing. I request expressions of interest by June 30, 2008. Expressions of interest should be emailed to matthew.hole@anu.edu.au

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Text by Boeing Phantom Works

Boeing is interested in working as part of a collaborative team to develop control laws that will prevent disruptions in long-pulse tokamak plasmas. Boeing is interested in identifying simulations and experiments that are not necessarily on tokamaks, which would lead to better understanding of control of instabilities in tokamaks. Boeing sees its role in this work as one of integrating knowledge available in the fusion community of the physics of plasma behavior into integrated control software for the plasma. Such an activity builds on Boeing's strength in dealing with interactions among multiple subsystems in an overall unstable system. Therefore, Boeing is interested in working with multiple people in the Australian fusion community who could develop and provide insight into multiple aspects of plasma behavior, the individual control of which must be integrated to achieve overall plasma control.

A related area of interest for Boeing is the development of models for inferred parameters; that is, developing from measurements we can make an understanding of plasma parameters which must be controlled, but which cannot be directly measured.

In addition, Boeing is interested in what might be called "Design for maintenance in harsh environments". There are many environments, such as in space and undersea in which equipment maintenance must be performed, but the environment is hazardous to people. Studies of hypothetical fusion power plants indicate that some of the core components will require regular removal and replacement, which would require work in a harsh nuclear environment. Much work is being done on robotic systems that could perform such maintenance, Boeing is interested in examining the other aspect of the maintenance, which is, what can be done in design of devices requiring maintenance to facilitate maintenance by remote manipulators and semiautonomous robots?

Please note that this list is not exclusive. It is likely that there are useful fields of collaboration in fusion energy that Boeing has not thought of at this time, so Boeing is interested in discussing concepts in areas that are similar to, but may not exactly described by, the areas of interest above.

TECHNICAL RESOURCES REVIEW

A committee has been established to review the School's technical resources, both human and infrastructure, with a clear understanding that the primary goal is to make recommendations that maintain the outstanding level of technical support that presently exists. Its Terms of Reference are:

1. To conduct a skills audit of the expertise across the Schools technical officer base and review the projected School demands on technical expertise over the next 5 -10 years in order to identify areas of risk
2. To conduct an audit of the technical infrastructure resources, principally facilities and equipment within Central and Departmental workshops
3. To assess the effectiveness of the current model of technical support provision and recommend an appropriate model for the future
4. To assess prospects of better interactions and sharing of technical resources across the School, the College and the University.

The committee membership is:

Professor Stephen Buckman (Chair - AMPL/CAMS)
A/Prof Tim Senden (Appl. Maths)
A/Prof Boyd Blackwell (HoD, PRL - Toro)
Mr Tony Cullen (Electronics Unit)
Professor David McClelland (Head, Physics Faculty)
Mr Graeme Cornish (Acting School Services Manager)
Dr Nikolai Lobanov (NP)
Mr Mike Avent (Business Manager, RSES)
Mr Rob Tidy (School HR Manager - Secretary)

The Committee will be formally seeking submissions which broadly address the Terms of Reference from Heads of Departments, Head Technical Officers, Heads of Technical Units and Workshops and from other Research Schools within the College of Science.

Any member of staff who has an interest in these

issues is invited to make a submission to the committee, or to bring their ideas and thoughts to the attention of any member of the committee in person.

The deadline for written submissions (to the Committee Secretary please) will be Friday June 20th, following which the committee will arrange to meet with interested parties.