

## **Australian Institute of Physics – NSW Branch**

### **Why Physics? What Physics?**

**Prof. Ross McPhedran, Dr Manjula Sharma & Dr Chris Stewart  
School of Physics, University of Sydney**

**Tuesday 31st May @ 6.00PM**

Slade Lecture Theatre, School of Physics, Sydney University

*Summary of talk:* The change in the HSC physics syllabus poses the questions "Why are we teaching physics?" and "What physics are we teaching?" In this forum we explore the answers to these questions. Ross will start off with addressing those fundamental questions, and the constraints one has in constructing a syllabus. Manju will discuss the educational research basis for the new syllabus and relate 'student interest in physics' with high school physics teaching. Chris will present research data on the way students' approaches to learning physics and content knowledge in mechanics have changed with the introduction of the new syllabus. We pose the question, whether university physics teaching and learning should change to meet the change in HSC physics syllabus or vice versa. We propose a way forward, asking the question whether the right syllabus or the best teachers are more important. In this context, are physics departments doing enough to train the next generation of physics teachers?

*Details:* For more information please contact Dr Fred Osman (phone (02) 4736-0750, email: f.osman@uws.edu.au)

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#### ***Brief Biography of the Speakers:***

Ross McPhedran is a Professor in Physics at the University of Sydney, specializing in theoretical physics and photonics. He was for seven years one of the two University representatives on the Science Syllabus Advisory Committee of the Board of Studies, responsible for oversight of the development of new science syllabuses for all science courses in New South Wales.

Dr Manjula Sharma is a senior lecturer in the School of Physics, University of Sydney and heads the Sydney University Physics Education Research group (SUPER). Her research interests are in the teaching and learning of physics with current projects ranging from the transfer of mathematics skills and knowledge to student understandings of gravity. Over the last six years she has

been involved in a research project investigating how physics students have changed with the change in HSC syllabus with Dr Stewart.

Dr Chris Stewart is a lecturer in the School of Physics, and Executive Officer of the Science Foundation for Physics within the University of Sydney. He has been researching student approaches to learning physics since 2001 in collaboration with Dr Sharma and the SUPER group, focussing on the attitudes and approaches of students as they enter university.

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***Detailed Schedule for Tuesday, 31 May 2005:***

- **5:30-6.00 pm** **Drinks and nibbles, Slade Lecture Theatre.**
- **6.05-7.00 pm** **Talks by Prof. Ross McPhedran, Dr Manjula Sharma & Dr Chris Stewart.**
- **7.15 pm** **Dinner with the Speakers at Buon Gusto (Italian), 368 Abercrombie Street, Chippendale.**  
*E-mail Dr Fred Osman if you will be able to join us for dinner.*

***Travel Directions:***

- Train to Redfern station and walk to the School of Physics.
- Buses 422, 423, 426, 428, 448, and 450 from Circular Quay to City Road / King, or 412, 435, 438, 470, 483 etc. along Parramatta Road from Circular Quay.
- Drive and park in various parking lots. You will need to pay for parking (\$6 flat-rate after 4 pm) and display the ticket in your car. You may also find parking places on public roads outside the Uni.