



**Australian Institute of Physics
NSW Branch (September Public Talk)**

**“Exploiting the colour variable in
scientific imaging”**

**Associate Professor David Coutts
Head Physics & Engineering, Macquarie University**

Tuesday 21st September 2010 @ 7.00PM

**At the
Slade Lecture Theatre, School of Physics, University of Sydney**

Public talk arranged by: The Australian Institute of Physics (NSW Branch)

Entrance is FREE

Summary of talk:

We are used to exploiting colour when graphically presenting data such as in colour contour plots. Colour can also be used to code information when recording data in the form of a full colour image. For example, colour can be used to encode temperature, pressure, humidity, time or a third spatial dimension in a 2-d image of a system under study.

In this talk I will discuss how to combine digital colour imaging with different colour based measurement techniques, selection of appropriate colour spaces and digital colour cameras and detail a colour based approach to 3-d laser based high speed imaging for particle tracking velocimetry. Finally prospects for ultrahigh speed imaging using chirped supercontinuum sources will be discussed.





Brief Biography of the Speaker:

David Coutts (B.Sc. hons. Massey University 1987, Ph.D Macquarie University 1992) is an Associate Professor in the Centre for Lasers and Application in the Department of Physics, and member of the Optical Society of America and the Australian Optical Society. He is an intern member of the University's Research Policy Management Committee, Deputy Chair of the University's Research Partnerships Panel and the Physics Department Director of Research. He was previously a Macquarie University Research Fellow (1992 to 1994), then Postdoctoral Research Associate (1995-1999), and an EPSRC Advanced Research Fellow (1999-2003) in the department of Atomic and Laser Physics, University of

Oxford. David Coutts' research interests include laser device development, nonlinear frequency conversion and applications, particularly developing and using high repetition rate UV-visible-IR lasers. Laser systems developed include high beam quality pulsed metal vapour lasers (including frequency doubled systems), tunable cerium solid-state lasers, Ti:sapphire lasers, liquid and solid-dye lasers; applications include materials processing, laser micromachining, laser based high speed imaging and biophotonics. Recent work focuses on developing novel sources and techniques for high speed imaging, developing all-solid state cerium UV lasers, and their applications to biophotonics sensing.

Detailed Schedule for Tuesday, 21st September 2010:

- **5.30-6.30 pm LECTURE by Dr Felix Lawrence.**
- **6:35-7.00 pm REFRESHMENTS, Slade Lecture Theatre.**
- **7.00-8.00 pm LECTURE by Associate Professor David Coutts.**
- **8.15 pm DINNER with the Speakers at Buon Gusto (Italian), 368 Abercrombie Street, Chippendale.**
E-mail Dr Fred Osman (fred_osman@exemail.com.au) 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.

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