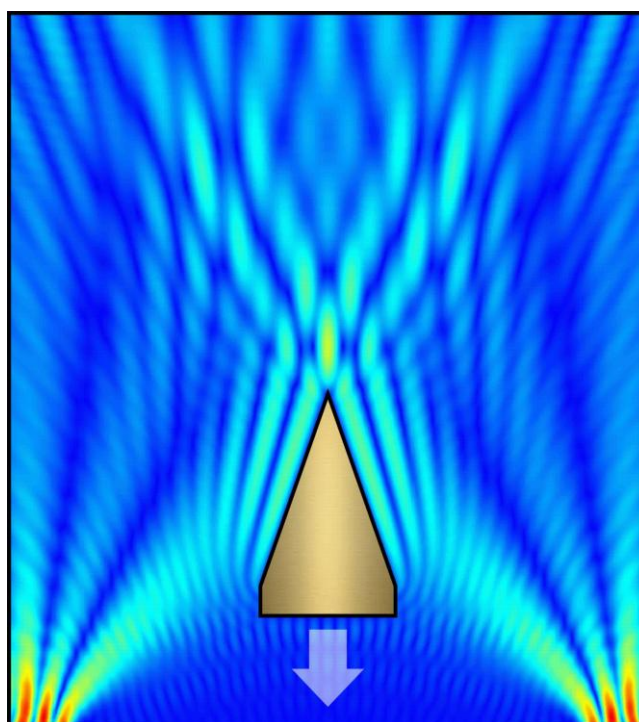


The Electrical Systems & Optics Research Division invites you to:
Applied Optics Group Lunchtime Seminar

Lots of ultrasound (and a little bit of light)

Prof. Sandy Cochran
**(Professor of Biophysical Science and Engineering,
Institute for Medical Science and Technology,
University of Dundee)**



1.00pm Wednesday 7th May 2014
2nd Floor Lecture Theatre
Tower Building. All welcome

Applied Optics Group Lunchtime Seminar:

Lots of ultrasound (and a little bit of light)

As a way to transfer energy from one place to another in physical media, ultrasound is a highly versatile tool for probing the nature and extent of media and for doing real work within them. This talk will highlight its basis in physics, the highly sensitive and, alternatively, high power systems that have been developed to make use of it, and the huge range of contemporary applications it has found. The complementary nature of light will also be mentioned.

Two specific themes will be explored. First, microultrasound and hybrid optical-acoustic systems will be discussed as ways to probe the body for medical diagnosis. Then, studies of a versatile, second generation, low cost, sonic screwdriver and a practical macroscopic tractor beam with optical visualisation will be presented, along with related developments in sonotweezing, hybrid optical - acoustic manipulation, and focused ultrasound surgery.

Conclusions will be drawn about how these themes may develop in future, how light may be understood as a fairly important phenomenon complementary to ultrasound, and where potential applications may lie.

Prof. Sandy Cochran holds a BSc in Electronics (1986), a PhD (1990) in ultrasonic array design and application, and an MBA (2001) all from the University of Strathclyde. At Strathclyde, he worked in the Centre for Ultrasonic Engineering, Department of Electronics and Electrical Engineering (1986 – 9, 1996 – 2000), and in the Superconducting Devices Research Group, Department of Physics (1990 – 95), holding a BP / Royal Society of Edinburgh Fellowship in Physics (1993 - 95). From Strathclyde, he moved to the University of the West of Scotland (2000 – 7) with an EPSRC Advanced Fellowship where he set up a research group in Microscale Sensors, with colleagues. In 2007, he moved to IMSaT, University of Dundee, where he is now Head of the Division of Imaging and Technology, and Team Leader in Medical Ultrasound.