



**Australian Institute of Physics
NSW Branch (Public Talk & AGM)**

**Superconductivity:
Has it changed or touched your life?**

**Dr Cathy Foley
CSIRO Materials Science and Engineering**

Tuesday 4th December 2007 @ 6.00PM

(The talk will follow the AGM which commences @ 5.30PM)

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:

Superconductivity has been around for nearly 100 years. It was mostly thought of as a laboratory curiosity and yet this research area has won 6 Nobel Prizes in physics and has a very large number of scientists and engineers working in the research field. I will discuss the history of superconductivity which operates only at either "high" temperatures of minus 200 degrees Celsius (discovered 20 years old this year) and "low" temperatures of about minus 270 degrees Celsius (96 years old this year). I will explain what it is, what is understood and what is not about this exciting but baffling property of many materials when they are cooled down past a critical temperature. I will look at applications such as MRI, mineral exploration, Magnetoencephelography, transport and power distribution and use in the development to fusion as a future energy source. I will then look into the future to see where superconductivity will play a role in the modern world including quantum computers and quantum teleportation and ask whether superconductors that operate at room temperature and do not need cooling are possible. I will also look at some interest results on whether superconductivity can explain about how cells communicate to get other.





Brief Biography of the Speaker:

Dr. Cathy Foley is a Senior Principal Research Scientist and Research Program Leader in Materials Physics with CSIRO Materials Science and Engineering. She is developing High and Low Temperature Superconducting systems for Mineral Exploration, detection of metal for quality assurance in manufacturing, electrode-less heart monitors and remote detection of contra band at airports. This multiple million-dollar project assisted with the discovery and delineation of the BHP Cannington Silver mine and her team is currently commercialising their systems. Her group were the first team to successfully fly superconducting systems. Cathy has a world class reputation in her field being a Fellow of the Institute of Physics in the UK and President of the Australian Institute of Physics.

Dr. Foley is well known for her interests in physics, science education, women in science, science in the media (she was a regular weekly guest on ABC radio 2BL radio for 5 years). She has been recently involved in developing the passion for science within CSIRO and renewing what it is to be a scientist. She has been awarded the Public Service Medal and Eureka Prize in 2005 and is the IEEE 2007-2008 Distinguished Lecturer which is a USA based honour.

Detailed Schedule for Tuesday, 4th December 2007:

- **5:30-6.00 pm ANNUAL GENERAL MEETING, Slade Lecture Theatre.**
- **6:00-6.30 pm REFRESHMENTS, Slade Lecture Theatre.**
- **6.35-7.30 pm LECTURE by Dr Cathy Foley.**
- **8.00 pm DINNER with the Speaker 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.

Event sponsored by:



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