THE UNIVERSITY OF MELBOURNE

School of Physics
2011 July Lectures

ABSOLUTELY NO RESISTANCE:
The strange discovery of superconductivity

Professor David Jamieson

Since the discovery in 1911 that frozen mercury would conduct electricity with absolutely no resistance when cooled to very low temperature, humanity has struggled to explain the phenomenon. It took nearly 50 years to explain the 1911 discovery but this explanation was challenged by new high temperature superconductors discovered in 1986. This lecture looks at the past and promise of this remarkable phenomenon.

Friday July 8 2011, 8:00 pm
Elisabeth Murdoch Theatre A

SUPERCONDUCTIVITY:
How it touches your life

Professor Cathy Foley (CSIRO)

Applications of superconductivity are ubiquitous in modern technology. From ultra-sensitive probes that can map brain waves to mobile phone base-stations and medical scanners, superconducting devices have enhanced our lives. This lecture looks at these applications and the important role Australian scientists have had in these innovations.

Friday July 15 2011, 8:00 pm
Elisabeth Murdoch Theatre A

THE SUPERCONDUCTING UNIVERSE: Breaking symmetry

Professor Ray Volkas

Could the entire universe be a superconductor? Some of the ideas used to explain superconductivity have had a surprising cross over into fundamental particle physics and our understanding of deep symmetries in the structure of matter at the most fundamental scale. Breaking these symmetries leads to the idea of the Higgs boson and the origin of mass. This lecture looks at the wide frontiers of superconductivity.

Friday July 22 2011, 8:00 pm
Elisabeth Murdoch Theatre A

SUPERCONDUCTIVITY IN SPACE:
Neutron stars and gravity waves

Associate Professor Andrew Melatos

Along with its strange cousin, superfluidity, superconductivity governs the behaviour of matter at the extreme conditions found inside supernova remnant neutron stars. Glitches in the crust of the neutron star and the super-strong magnetic field from the stars promise floods of gravity waves that one day soon we may be able to detect on Earth.

Friday July 29 2011, 8:00 pm
Elisabeth Murdoch Theatre A

100 years of superconductivity

THE LECTURES ARE **FREE** AND **OPEN TO THE PUBLIC** - **NO BOOKING IS REQUIRED**
More information: http://outreach.physics.unimelb.edu.au/July-Lectures-in-Physics or contact 8344-7670