

IEEE Distinguished Lecturer Prof. Jeff Tallon at ISEM, UOW, Australia

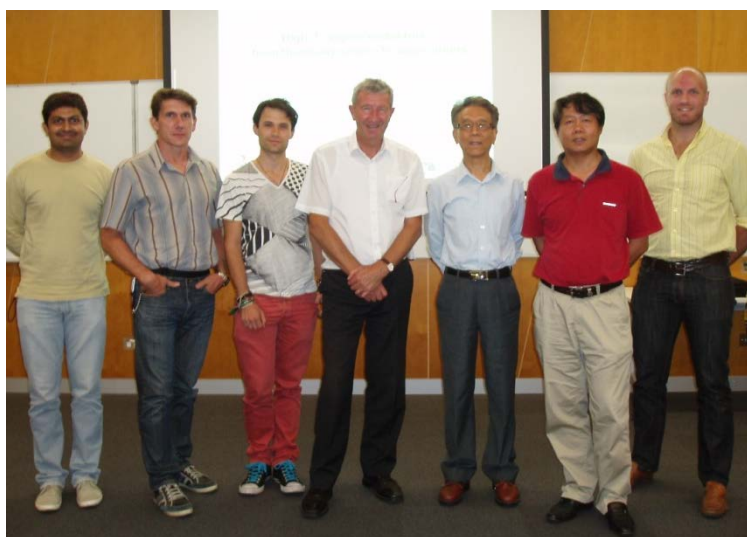
March 12, 2015 (HE101). On 5 March 2015, Prof. Jeff Tallon of New Zealand, who is IEEE Distinguished Lecturer in Applied Superconductivity (<http://ieeecsc.org/people/jeff-tallon>), has delivered his lecture to staff and students of the University of Wollongong (Australia) (<http://www.uow.edu.au/index.html>) at the Institute for Superconducting and Electronic Materials (<http://isem.uow.edu.au/introduction/index.html>) located at the Australian Institute for Innovative Materials (<http://www.innovationcampus.com.au/leasing/icbuildings/aimm/index.html>), Innovation Campus in Wollongong located 80 km south of Sydney (Australia). The abstract of this lecture is reproduced below.

High- T_c superconductors – from thermodynamics to applications

High- T_c superconductors – both cuprates and iron pnictides – have proved to be absolutely fascinating in their complex and subtle phase behaviour which has largely eluded understanding despite the most intense study over decades. Our group has worked over this period across a broad spectrum – from fundamental research, to applied research, wire-development, applications-development and manufacturing.



This talk starts from thermodynamics and shows that relatively simple universal behaviour emerges from the complexity of high- T_c materials. The same underlying relationships prove also to be relevant to the question of critical current density – the maximum current supportable by a superconductor. Despite the popular focus on the highest possible value of T_c , the critical current density is perhaps the most important property for applications. We show, again, that simple universal behaviour occurs here – for all superconductors. Finally we discuss a wide range of applications of these astonishing materials, from motors and generators to ion-implantation and MRI.



In attendance of the lecture (From left to right): Dipakkumar Patel, Prof. Alexey V. Pan, Frederick S. Wells, Prof. Jeff Tallon, Prof. Shi X. Dou (ISEM Director), Prof. Xiaolin Wang, Jonathan Knott