Crystalline Silicon Photovoltaics: Materials and Devices

by Prof. Andres Cuevas

Date: 14th September 2006 (Thursday)
Time: 12:00 to 1:00 pm
Venue: LT 4

Abstract

Twenty-five years of research and development have consolidated crystalline silicon as the photovoltaic material by excellence. This talk will summarise the status of photovoltaic technology, dedicating special attention to the current understanding of multicrystalline silicon. In particular, the consequences that contaminants such as metallic impurities have on its electronic properties, and techniques to extracting or neutralising them will be described. The application of plasma enhanced silicon nitride and other dielectrics to passivate the surfaces of the wafers and hydrogenate crystal defects will also be reviewed. Finally, the seminar will give examples of high performance devices and point out the key issues that need to be addressed in order for multicrystalline silicon solar cells to maintain their dominant position into the future.

Prof. Andres Cuevas

Andres Cuevas, PhD (Univ Politecnica Madrid, 1980), M Eng (Telecommunications, U. P. Madrid, 1976) has held academic positions at the Universidad Politecnica de Madrid (1980-1993) and at The Australian National University, where he is Professor of Electrical Engineering. He has been a Fulbright Scholar at Stanford University and a visiting researcher at the universities of Florida and Catalunya, the CNR-Bologna and ENEA in Italy, and the Fraunhofer ISE in Freiburg. His contributions to the field of silicon solar cells are described in more than 230 scientific publications, including several patents and book chapters. His broad interests in semiconductor physics and technology have recently focused on novel characterisation techniques for electronic materials and devices, the study of fundamental properties of silicon, the passivation of its surfaces by means of silicon nitride, and the advancement of multicrystalline silicon solar cells.

Dr Xue Jun Min

ALL ARE WELCOME!