אוניברסיטת תל-אביב
TEL AVIV UNIVERSITY

The Seidman Family Lecture Series
In memory of Elie and Jeanne Cohen-Sabban, z"l, Marseille, France, and Charles and Jeanette Seidman, z"l, New York City, New York

Simulation of Electronic Transport in Nanostructures

Prof. Pablo Ordejón

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Electronic transport in nanoscale systems and nanostructured materials is an area of great activity. From the theoretical point of view, it is very desirable to be able to describe in a manner as realistic as possible the properties of specific systems and devices, and not only the general physical trends and effects. Simulation can currently achieve this to a certain degree, based on first-principles calculations. In this talk, I will review work done in this direction, in developing first-principles methods to tackle the problem of quantum transport in nanoscale devices, and recent attempts to scale up these calculations to be able to deal with larger and more realistic problems, which ab-initio methods are still too expensive to reach.

Prof. Ordejón earned his PhD in Physics from the Universidad Autónoma de Madrid in 1992 and has worked in several laboratories in Spain, as well as at the University of Illinois, in the United States.

Since 2012 he is Director of the Catalan Institute of Nanoscience and Nanotechnology (ICN2) in Barcelona, where he also leads the Theory and Simulation research group.

In 2003, Dr Ordejón was awarded the Prize the Spanish Association of Scientist, and in 2005 he became Fellow of the American Physical Society. He has served on various international scientific committees and as head of scientific evaluation panels at the Spanish National Evaluation and Foresight Agency (ANEP) and at the Red Española de Supercomputación (RES).

His research interests focus on the theoretical study of processes at the nanoscale, using first-principles simulations techniques. He has lead the development of efficient methods for computer simulations in nanoscale systems, including the SIESTA code which is used by hundreds of groups worldwide. Currently, he is involved in the simulation of physical processes in 2D materials, surfaces and nanostructures.

Wednesday, July 8th, 16:00

Room 206, Wolfson Mechanical Engineering Building