

Seminario de análisis matemático y aplicaciones
Analisi matematikoa eta aplikazioak mintegia

**Some quantum and semi-classical methods with
applications in nanotechnology**

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ABSTRACT:

In this talk we will present methods that we have developed or used for the simulation of two kinds of nano-components : the resonant tunneling diodes and graphene based devices. For such devices, the numerical complexity is important due the following mathematical issues: the simulation of open systems, stiff variation with respect to the energy, resonant tunneling and band to band tunneling. In this context, we will show how our methods, which are based on asymptotic and semi-classical analysis, can be coupled with their corresponding quantum solvers in order to reduce the numerical complexity and observe physical phenomena like the beating effect. We will present our work towards the mathematical justification and the numerical analysis of these methods.

LUGAR / LEKUA:

Sala de seminarios de la sección de matemáticas
Matematika ataleko mintegi gela

DÍA Y HORA / EGUNA ETA ORDUA:

22/02/2018, 12:00