Asymptotic models for the transport of an electron gas strongly confined in a slab

Fanny Delebecque

The first model is a 3D Schrödinger Poisson system in the whole 3D space, singularely perturbed by a strong confinement potential acting on one direction. The obtained asymptotic model is a simple 2D Schrödinger equation coupled with a Poisson equation on whole density, concentrated on the transport plane. In a second model, the confinement is ensured by homogeous boundary conditions on both the wave function and Poisson potential. I will present time averaging technics used to get rid of the strong time oscillations due to the confinement.