SEMINARI D'ANÀLISI UAB-UB **Curs 2012–2013**

Dilluns 8 d'abril del 2013, 15:00h

Aula A1 (CRM).

Shell interactions for Dirac operators

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ABSTRACT:

In this talk we will study the self-adjointness of $H + V$, where $H = -i\alpha \cdot \nabla + m\beta$ is the free Dirac operator in $\mathbb{R}^3$ and V is a measure-valued potential. The potentials V under consideration are given by singular measures with respect to the Lebesgue measure, with special attention to surface measures of bounded regular domains. The existence of non-trivial eigenfunctions with zero eigenvalue naturally appears in our approach, which is based on well known estimates for the trace operator defined on classical Sobolev spaces and some algebraic identities of the Cauchy operator associated to H. This is a joint work with Naiara Arrizabalaga and Luis Vega.