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Aula Petita (CRM).

The electromagnetic Dirac operators

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ABSTRACT: In this talk we present the operator $H = H_0 + V$ where $H_0 = -i\alpha \cdot \nabla + m\beta$ is the free Dirac operator in \mathbb{R}^d and V is a matrix-valued electromagnetic potential with singularity at the origin. We will also study the self-adjointness of the operator H and we show the relation of this problem with a Hardy-type inequality. Moreover, for some particular potentials, a minimizing sequence of the inequality gives us the eigenfunctions of H of eigenvalue 0. This is a joint work with Javier Duoandikoetxea and Luis Vega.