Calderón-Zgymund Analysis Seminar

Monday, January 25th, 3:45 pm

Title: Producing minimal submanifolds via gauge theory

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Abstract. The self-dual U(1)-Yang-Mills-Higgs functionals are a natural family of energies associated to sections and connections of Hermitian line bundles, the analysis of whose minimizers and critical points has long been studied as a model problem in low-dimensional gauge theory. In this talk, I will discuss joint work with Alessandro Pigati showing that critical points of these functionals give rise to minimal submanifolds of codimension two under certain natural scaling limits, in a manner strikingly similar to the convergence of solutions of the Allen-Cahn equations to minimal hypersurfaces. I'll also describe ongoing work with Davide Parise and Alessandro Pigati that provides an associated Gamma-convergence theory, and discuss some geometric applications.