1171-35-126   **Pablo Raúl Stinga***, Department of Mathematics, Iowa State University, 396 Carver Hall, Ames, IA 50011. *Regularity for $C^{1,\alpha}$ interface transmission problems.*

We show how transmission problems with fixed interfaces can be seen as nonlocal systems on the interface. Then, we present existence, uniqueness and optimal regularity of solutions to transmission problems for harmonic functions with $C^{1,\alpha}$ interfaces. The main tool we develop for the regularity estimates is a new geometric stability argument based on the mean value property. This is joint work with Luis A. Caffarelli and María Soria-Carro (UT Austin). (Received August 09, 2021)