

1163-35-872

Jill Pipher* (jill_pipher@brown.edu), Dept. of Mathematics, 151 Thayer St., Providence, RI 02912. *Boundary value problems for elliptic complex coefficient operators and systems in the presence of p -ellipticity.*

Let $\mathcal{L} = \operatorname{div}A\nabla$ be a second order elliptic operator, where A is a matrix of bounded measurable complex-valued functions. With M. Dindos, we formulated a condition, *p -ellipticity*, on complex-valued matrices in order to study regularity of solutions to operators like \mathcal{L} , borrowing the term from Carbonaro and Dragičević who simultaneously introduced this condition in their study of bilinear embeddings. Our formulation was inspired by work of Cialdea and Mazya on L^p -dissipativity, and we were able to prove higher integrability and regularity of solutions via a Moser iteration argument. In this talk we explain the role of *p -ellipticity* in obtaining solvability of boundary value problems for these complex-valued divergence form equations, and a recent extension of this concept to elliptic systems that is joint work with Martin Dindos and Jungang Li (Received September 13, 2020)