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Svitlana Mayboroda* (svitlana@math.purdue.edu), Department of Mathematics, Purdue University, 150 N. University Street, West Lafayette, IN 47907. *The connections between Dirichlet, Regularity and Neumann problems for second order elliptic operators with complex bounded measurable coefficients.*

I will discuss the relations between regularity, Dirichlet, and Neumann problems. In particular, I will prove that the solvability of the regularity problem does not imply the solvability of the dual Dirichlet problem for general elliptic operators with complex bounded measurable coefficients. This is strikingly different from the case of real operators, for which such an implication was established in 1993 by C.Kenig, J. Pipher [Invent. Math. 113] and since then has served as an integral part of many results. (Received January 25, 2010)