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Regularity of solutions to elliptic and parabolic equations

A famous series of papers by De Giorgi, Nash and Moser showed that weak solutions to divergence form elliptic and parabolic equations are in fact continuous, and possess other important properties, even when the coefficients are merely bounded and measurable. This paved the way for the development of a theory of boundary value problems in the presence of minimal smoothness assumptions on the coefficients. Many of the interesting regimes in which answers are known arise from the classical Dirichlet problem for the Laplacian in domains with non-smooth boundaries. In this talk I will provide an overview of the progress in this subject, and describe some recent results concerning regularity of solutions to complex-coefficient equations.