

# The Dirichlet Problem with Data in Hardy Spaces for Elliptic Systems in the Upper-Half Space

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**Abstract:** In this talk we will discuss the solvability of the Dirichlet problem for elliptic, second-order, homogeneous  $M \times M$  systems with constant, complex coefficients in the upper-half space  $\mathbb{R}_+^n$ , with boundary data in the Hardy Space  $H^p(\mathbb{R}^{n-1})$  for  $p \in (\frac{d-1}{d}, 1)$ . The solution is expressed in terms of the convolution between the S. Agmon, A. Douglis, and L. Nirenberg Poisson kernel for the given system and the boundary datum from the corresponding Hardy space. A key tool in establishing nontangential maximal estimates for the solution constructed in this manner is a certain new, general criterion guaranteeing boundedness in  $H^p(\mathbb{R}^{n-1})$  for linear operators.