

WORKING GROUPS PDE

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Boundary value problems for the Schrodinger equation on a half plane and generalizations

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While the theory of non-homogeneous boundary value problems for elliptic, parabolic and hyperbolic is relatively well understood, there is still a lack of results for dispersive equations (eg: Schrodinger, Korteweg de Vries, Davey-Stewartson...), especially in dimension greater than one. We will study here a class of boundary value problems for the linear Schrodinger equation on a half plane by focusing on two important points: what is an acceptable boundary condition and what should be the regularity of the trace? By adapting techniques from the hyperbolic frame, we will give answers to these questions and derive a well-posedness results under natural conditions. We will conclude by giving several generalizations of this result and further directions of investigation.