

TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Zoom Talk (link will be sent by email)

Monday, October 11 2021, 2:30 p.m.

*A first-order approach to solvability for
singular Schrödinger equations*

by Andrew Morris

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Abstract: We will first give a brief overview of the first-order approach to boundary value problems, which factorises second-order divergence-form equations into Cauchy-Riemann systems. The advantage is that the holomorphic functional calculus for such systems can provide semi-group solution operators in tremendous generality, extending classical harmonic measure and layer potential representations. We will then show how recent developments now allow for the incorporation of singular perturbations in the associated quadratic estimates. This allows us to solve Dirichlet and Neumann problems for Schrödinger equations with potentials in Sobolev-critical Lebesgue spaces and reverse Hölder spaces. This is joint work with Andrew Turner.