FREDHOLM APPROACH TO THE SCHRÖDINGER EQUATION

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Venue: Zoom ID：618 038 6257 passcode：SCMS

Abstract: We discuss a new approach, inspired by work of Hintz and Vasy, to solving the Schrödinger equation $(i \partial_t - \Delta) u = f$ using the Fredholm method. Specifically, we use 'parabolic' pseudodifferential operators (reflecting the parabolic nature of the symbol of $P = i \partial_t - \Delta$) to obtain families of function spaces X, Y for which $P : X \to Y$ is an isomorphism. The spaces further allow us to read off precise regularity and decay information about u directly from that of f. We discuss applications to the nonlinear Schrödinger equation, and extensions of this method to equations with compact spatial perturbations, such as smooth decaying potential functions, using the N-body calculus of Vasy. This includes joint work with Dean Baskin, Sean Gomes, and Andrew Hassell.