SPEAKER:

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TITLE:

Long-Time Asymptotics for the Nonlinear Schrödinger Equation via $\overline{\partial}$
Steepest Descent

ABSTRACT:
The defocusing nonlinear Schrödinger equation (NLS) in one space dimension is
a completely integrable PDE exhibiting dispersive behavior. In 2002, Deift and
Zhou developed a rigorous analysis of the long-time asymptotics of solutions of
the NLS equation and determined an error bound associated with the leading
asymptotics. We will walk through the more modern treatment of NLS by
Dieng, McLaughlin, and Miller (2019), whose simpler method utilizes $\overline{\partial}$ steepest
descent to strengthen the results of Deift and Zhou. Time permitting, a brief
discussion of advances in nonlocal NLS equations will be included. This talk is
based on "Dispersive Asymptotics for Linear and Integrable Equations by the $\overline{\partial}$
Steepest Descent Method" by Momar Dieng, Kenneth McLaughlin, and Peter
Miller.