

Numerical complex singularity tracking in nonlinear PDEs

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In this talk we survey a few numerical methods for complex singularity tracking in nonlinear PDEs. This includes the classical Fourier-Padé approximation and more recent progress in the Fourier-Hermite-Padé variant as well as the adaptive Antoulas–Anderson algorithm (AAA). Numerical demonstrations involving nonlinear dispersive and nonlinear dissipative PDEs will be presented, including modulational instability in the cubic Schrödinger equation and blow-up in a nonlinear heat equation.