

# RATIONAL FOURIER APPROXIMATION: COMPUTATION AND APPLICATIONS

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The focus of the talk is Fourier approximation, with particular application in the field of nonlinear time-dependent PDEs. In the case of periodic boundary conditions, the Fourier spectral method, combined with an appropriate time-integrator, is a highly accurate method for solving such PDEs. When converted to rational form, its usefulness can be extended to more challenging situations, such as the removal of oscillations near shocks or analytic continuation into the complex plane for studying singularity dynamics. Most examples presented are based on Fourier-Padé approximation. If time permits, other rational approximations, such as periodic-AAA, will be discussed.