

The stability of periodic solutions of the focusing NLS equation

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A surprisingly large number of physically relevant dispersive partial differential equations are integrable. Using the connection between the spectrum and the eigenfunctions of the associated Lax pair and the linear stability problem, we investigate the stability of the spatially periodic traveling wave solutions of such equations, extending the results to orbital stability in those case where solutions are linearly stable. The talk will emphasize recent results for the focusing NLS equation, as this situation is more complicated than that of other equations previously studied, for which the Lax pair is self adjoint.

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