Constructive asymptotic analysis and applications to spectral problems

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Abstract

In a number of mathematical questions, the answer does not appear to emerge in any obvious way from qualitative or structural features of the problem. I will discuss constructive techniques to tackle problems which have eluded general approaches, ranging from non-perturbative dispersive estimates in the Schrödinger equation of a Hydrogen atom in time-periodic fields, to other open problems such as stability of NLS standing waves (verifying rigorously the so-called gap condition) and global questions about integrable systems.

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