

Convergence of spectral decompositions of Hill-Schroedinger operators

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The spectra of Schroedinger and Dirac operators with real-valued periodic potentials on the real line have a band structure, that is, the intervals of continuous spectrum alternate with spectral gaps, or instability zones. If a potential is complex-valued the series of questions on non-self-adjoint operators arises: – the relationship between the smoothness of the potential and the rate of decay of complex analogs of spectral gaps and deviations of twin-eigenvalues; – convergence and divergence of spectral decompositions of non-self-adjoint Hill and Dirac operators, – Riesz basis properties of the system of eigen- and associated functions.

The talk is based on joint works with Plamen Djakov (of Sabanci University); let us mention just Russ. Math. Surv. 61:4, 663 - 766 (2006); Math. Annalen, 2011 (or arXiv 0911.3218)