

# Bounds on the Spectral Shift Function and the Density of States

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## **Abstract**

We study spectra of Schrödinger operators on  $\mathbb{R}^d$ . First we consider a pair of operators which differ by a compactly supported potential, as well as the corresponding semigroups. We prove almost exponential decay of the singular values of the difference of the semigroups as and deduce bounds on the spectral shift function of the pair of operators. These bounds have applications to random alloy type Schrödinger operators. For these operators, we assume the single site potential to be non-negative and of compact support. The distributions of the random coupling constants are assumed to be Hölder continuous. Based on the estimates for the spectral shift function, we deduce a Wegner estimate which implies Hölder continuity of the integrated density of states.

This is joint work with Rowan Killip, Shu Nakamura, Peter Stollmann, and Ivan Veselić.