

Joachim Kerner (FernUniversität Hagen, Germany)

Spectral gaps of Schrödinger operators on domains of increasing volume

In this talk we shall discuss recent results on the asymptotic behaviour of spectral gaps of Schrödinger operators in one and higher dimensions as well as on discrete graphs. More explicitly, we study operators on domains in the limit of infinite volume which allows to arrive at statements for a large class of potentials. Most importantly, we will identify a mechanism that leads to a faster decay of the spectral gap when compared to the one of the free Laplacian. Although this effect is more prominent in lower dimensions, it can nevertheless be rediscovered in higher dimensions depending on the property of the underlying potential. This then reveals some interesting interplay between the geometry the domain and the given potential (the talk is based on joint work with M. Täufer and P. Yatsyna).