

Peter Müller: "Entanglement entropy for quasifree Fermi gases: area law versus logarithmic enhancement"

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An overview is presented of Szeg\H{o}-type asymptotics for spectral projections of multi-dimensional continuum Schr\o dinger operators. Whenever possible we treat general test functions, including those which describe entanglement entropies of corresponding quasifree Fermi gases. Unfortunately, there exists no general theory which allows to deduce the leading asymptotic behaviour of entanglement entropies and whether they exhibit an area law or a logarithmically enhanced one. Therefore we focus on examples which shed some light on the underlying mechanism. We investigate stability, the role of spectral types versus dynamical (de-) localization and the relevance of the spatial structure of (generalised) eigenfunctions at the Fermi energy.