1079-47-345 **Roger Nichols***, Mathematics Department, 202 Mathematical Sciences Bldg, University of Missouri, Columbia, MO 65211, and **Fritz Gesztesy**. *On the Infinite Volume Limit of Spectral Shift Functions.*

Using methods based on convergence of Fredholm determinants, we derive results of the type

$$\lim_{R\to\infty}\int_{\mathbb{R}}\xi(\lambda;H_R,H_{0,R})f(\lambda)d\lambda=\int_{\mathbb{R}}\xi(\lambda;H,H_0)f(\lambda)d\lambda,$$

where $\xi(\cdot;A,B)$ denotes the spectral shift function associated with the pair of self-adjoint operators A and B. Here H_R, $H_{0,R}$ is an appropriate pair of self-adjoint operators associated with a finite volume, Λ_R, with H, H_0 the corresponding pair of self-adjoint operators in the infinite volume limit $R\to\infty$ and $f\in C_\infty(\mathbb{R})$, the continuous functions vanishing at $\pm\infty$. In a one-dimensional context, $\Lambda_R=[0,R]$, $R>0$, these results apply to Schrödinger operators with any separated boundary conditions at 0 and R. These results are also applicable to n-dimensional Schrödinger operators and also to abstract scattering theoretic situations. (Received January 17, 2012)