1001-34-108 **D. J. Gilbert**, **B. J. Harris** and **S. M. Riehl*** (`riehl@math.uni.edu`), Department of Mathematics, University of Northern Iowa, Cedar Falls, IA 50614-0506. *The spectral function associated with Sturm-Liouville equations with potential of Wigner-von Neumann type.*

For the linear, second-order differential equation $y'' + (\lambda - q(x))y = 0$ on $[0, \infty)$, with boundary condition $y(0)\cos\alpha + y'(0)\sin\alpha = 0$, for some $\alpha \in [0, \pi)$, we study the spectral function $\rho_\alpha(\lambda)$ when the potential function $q(x)$ is of Wigner-von Neumann type. In particular, we derive a series expansion for $\rho'_\alpha(\lambda)$, valid for $\lambda \geq \Lambda_0$ where Λ_0 is computable. We also establish a computable upper bound for points of spectral concentration for the equation and boundary condition with $\alpha = 0$. (Received August 17, 2004)