1161-47-145 **Jonathan Stanfill*** (jonathan_stanfill@baylor.edu), **Guglielmo Fucci**, **Fritz Gesztesy** and **Klaus Kirsten**. *Traces, Determinants, and Spectral Zeta Functions for Sturm–Liouville Operators.* Preliminary report.

Under appropriate hypotheses on regular as well as singular Sturm–Liouville operators associated with differential expressions of the type $\tau = r^{-1}[-(d/dx)p(d/dx) + q]$, the associated spectral ζ-function can be found through complex contour integration techniques to equal the residue of explicit functions, F (essentially, Fredholm determinants), involving a canonical system of fundamental solutions of $\tau y = zy$. The asymptotic behavior of F allows for a deformation of contours to find explicit expressions for the spectral ζ-function for $n \in \mathbb{N}$. We end by providing various concrete examples.

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