Mark Krein's Method of Directing Functionals and Singular Potentials

We show how M. Krein's method of directing functionals can be used to prove the existence of a scalar spectral measure for certain Sturm–Liouville equations with two singular endpoints. The essential assumption is the existence of a solution of the spectral equation that is square integrable at one singular endpoint and depends analytically on the eigenvalue parameter.

The talk is based on joint work with Charles Fulton and Heinz Langer.