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## Online talk series

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It is a pleasure to announce a guest lecture with the title

# Stahl–Totik regularity for continuum Schrödinger operators

**SPEAKER:** Milivoje Lukic

**TIME:** Tuesday, 17.11.2020, 04:00 pm.

**Abstract:** This talk describes joint work with Benjamin Eichinger: a theory of regularity for one-dimensional continuum Schrödinger operators, based on the Martin compactification of the complement of the essential spectrum. For a half-line Schrödinger operator  $-\partial_x^2 + V$  with a bounded potential  $V$ , it was previously known that the spectrum can have zero Lebesgue measure and even zero Hausdorff dimension; however, we obtain universal thickness statements in the language of potential theory. Namely, we prove that the essential spectrum is not polar, it obeys the Akhiezer–Levin condition, and moreover, the Martin function at  $\infty$  obeys the two-term asymptotic expansion  $\sqrt{-z} + \frac{a}{2\sqrt{-z}} + o(\frac{1}{\sqrt{-z}})$  as  $z \rightarrow -\infty$ . The constant  $a$  in its asymptotic expansion plays the role of a renormalized Robin constant and enters a universal inequality  $a \leq \liminf_{x \rightarrow \infty} \frac{1}{x} \int_0^x V(t) dt$ . This leads to a notion of regularity, with connections to the exponential growth rate of Dirichlet solutions and limiting eigenvalue distributions for finite restrictions of the operator. We also present applications to decaying and ergodic potentials.

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