Inverse resonance scattering for Jacobi operators

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We consider the Jacobi operator $(Jf)_n = a_{n-1}f_{n-1} + a_n f_{n+1} + b_n f_n$ on $\mathbb{Z}$ with a real compactly supported sequences $(a_n - 1)_{n\in\mathbb{Z}}$ and $(b_n)_{n\in\mathbb{Z}}$. We give the solution of two inverse problems (including characterization): $(a, b) \to \{$zeros of the reflection coefficient$\}$ and $(a, b) \to \{$bound states and resonances$\}$. We describe the set of "iso-resonance operators J", i.e., all operators J with the same resonances and bound states.