The bottom of the spectrum of a Riemannian covering

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In this talk I will describe the idea of the proof of the following theorem by R. Brooks: If $p : M_2 \to M_1$ is a normal Riemannian covering and M_1 is compact, then the deck transformation group Γ is amenable if and only if $\lambda_0(M_2) = 0$. Moreover, I will prove a generalization for Schroedinger operators.