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Título: Eigenvalues And Completeness For Regular And Simply Irregular Two-Point Differen

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Sinopsis

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In this monograph the author develops the spectral theory for an n th order two-point differential operator L in the Hilbert space $L^2[0,1]$, where L is determined by an n th order formal differential operator ℓ having variable coefficients and by n linearly independent boundary values B_1, \dots, B_n . Using the Birkhoff approximate solutions of the differential equation $(\rho I - \ell)u = 0$, the differential operator L is classified as belonging to one of three possible classes: regular, simply irregular, or degenerate irregular. For the regular and simply irregular classes, the author develops asymptotic expansions of solutions of the differential equation $(\rho I - \ell)u = 0$, constructs the characteristic determinant and Green's function, characterizes the eigenvalues and the corresponding algebraic multiplicities and ascents, and shows that the generalized eigenfunctions of L are complete in $L^2[0,1]$. He also gives examples of degenerate irregular differential operators illustrating some of the unusual features of this class.