

Estimates of the discrete spectrum of some linear operator pencils

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Based on the direct methods of the perturbation theory, spectral properties of linear operator pencils of the form $L(\lambda) = B - \lambda A$, where A and B are self-adjoint operators in a Hilbert space \mathcal{H} are studied. First, we treat the problems for the general case of an abstract operator pencil $L(\lambda)$, and then, as applications, we investigate the spectra for some concrete operator pencils, namely those related to the characteristic equation of radiation energy transfer. Estimate formulae for the discrete spectrum are also established.