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Eliashberg Theory of Multiband Superconductors

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The application of the Eliashberg strong-coupling theory to multiband superconductors is discussed. The results of calculations are presented for the electronic densities of states in different bands, the tunneling conductance, the free energy and the specific heat. Effects of impurity scattering are discussed with particular emphasis on the two-band case relevant for new superconductor MgB2. The results are compared with the experimental data for doped MgB2 samples.