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Density Functional Theory for Superconductors: new functionals and applications ANTONIO SANNA, E.K.U. GROSS, Max Planck Institute of Microstructure Physics — Density functional theory for superconductors (SCDFT) is a fully parameter-free approach that allows for accurate predictions of the critical temperature and other properties of superconductors. We report on the most recent extensions of this theoretical framework, in particular the development of new functionals to:

- incorporate in a correct fashion Migdal's theorem;
- compute the excitation spectrum;
- include spin-fluctuation mediated pairing

Applications and predictions are shown for a set of materials including conventional and unconventional superconductors.

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