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Title

Are we on the way to the room temperature superconductivity?

Abstract:

Recently a great progress was achieved in searching for superconductors with high transition temperature T_c . The current record is around 250 K. Although this exist only at high pressure and is still below the room temperature, one can hope that the room temperature superconductivity is not impossible. How high T_c can be?

This talk is about the theoretical restriction on the strength of the electron phonon interaction and on the transition temperature. I will briefly introduce the conventional Migdal - Eliashberg approach to the problem of strong electron-phonon interaction and describe the limits of its applicability, which follow from the condition of the system stability. These conclusions will be compared with existing experiments.