

Conventional High Temperature Superconductivity: From A15 to MgB2 to Super Hydrides

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ABSTRACT

Dr. Mazin will review in a rather popular-science way, mostly for the benefit of the younger generation, the history of the half-century long quest for room-temperature superconductivity, concentrating on the conventional electron-phonon mechanism. He will outline several stages, characterized by different paradigms, which can be tagged in a Potterian way thus:

- (1) A-15 and the concept of an upper bound on T_c
- (2) V.L. Ginzburg and the concept of a negative dielectric function
- (3) MgB₂ and the concept of doped covalent bonds
- (4) H₃S and the concept of MgB₂ on steroids
- (5) Superhydrides and the concept of artificially stabilized metal hydrogen