

Deconfinement in coupled Luttinger liquids

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The Bechgaard salts were the first examples of organic superconductors. In addition to the superconducting phase these compounds exhibit a host of other phases, among them a Mott insulating one. Their structure is made of weakly coupled one dimensional conducting chains, and therefore poses very challenging problems to the theorist. Indeed these compounds can exhibit a dimensional crossover between a one dimensional high temperature phase, where interaction effects are dominant, towards a more conventional fermi liquid phase at low temperature. I will review some of the physical properties of these systems and the experimental puzzles they present. I will then discuss our recent studies of the Mott insulating phase and of the dimensional crossover.