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Title: Material specific Hamiltonian approach to iron-based and cuprate high Tc superconductors

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In recent years, accelerating amount of study on correlated electron systems has been performed by taking into account accurately the band structure obtained from first principles calculation. As for unconventional superconductivity in correlated electron systems, although there remains some ambiguity concerning the pairing mechanism itself, theoretical studies on, e.g, lattice structure and/or element dependence with certain reliability is now becoming possible. In the present talk, we first show for the iron pnictide high Tc superconductors that the strong lattice structure sensitivity of the Tc and the superconducting gap observed experimentally can be understood within the spin fluctuation mediated pairing scenario by adopting material specific five orbital models which take into account all the Fe 3d bands accurately. Here, the sensitivity to the lattice structure originates from the pocket-like nature of the Fermi surfaces. It is also interesting to give a fresh look at the material dependence of Tc in the high Tc cuprates from the viewpoint of constructing material specific models from first principles. In fact, we find that a change in the lattice structure leads to an important difference in the band structure even in the cuprates, thereby affecting superconductivity.