Abstract Submitted
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$Cu_{1-x}BiSO$: the first Fe-pnictide-structured compound without Fe or Pnictogen[1] LUCIANO ORTENZI, Max Planck Institute for Solid State Research, Stuttgart, SILKE BIERMANN, Centre de Physique Théorique, Ecole Polytechnique, France, OLE KROGH ANDERSEN, Max Planck Institute for Solid State Research, Stuttgart, Germany, IGOR I. MAZIN, Naval Research Laboratory, Washington, DC 20375, USA, LILIA BOERI, Max Planck Institute for Solid State Research, Stuttgart, Germany — The electronic structure of 1111 transition metal pnictides offers a large variety of low-energy phenomena depending on the electronic filling explored. Based on first principles calculations I study the electronic filling d^{10-x} represented by $Cu_{1-x}BiSO$: a band insulator that becomes metallic upon hole doping. I argue that the electron-phonon coupling is very strong in this material, and probably drives superconductivity. The critical temperature is however strongly depressed by the proximity to ferromagnetism. The competition between these two different order parameters brings about a high tunability of the system that can go from conventional to unconventional superconductivity by varying such parameters as doping or pressure.

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