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**Tc amplification in pnictides due to Feshbach shape resonance in multigap superconductivity realized by tuning the Fermi level at the electronic topological transiton to one of the subbands** ANTONIO BIANCONI, Sapienza University of Rome, Italy, DAVIDE INNOCENTI, Sapienza University of Rome, NICOLA POCCIA, Sapienza University of Rome, Italy, ALESSANDRO RICCI, Sapienza University of Rome — The new high Tc superconducting Pnictides AFe2As2 (A=Ba,Sr or Ca) are heterostructures at atomic limit like cuprates as described in the patent [A. Bianconi "Process of increasing the critical temperature Tc of a bulk superconductor by making metal heterostructures at the atomic limit" United State Patent No. :US6, 265, 019 B1, July 24, 2001] in fact are made of superconducting layers intercalated by spacer layers. ( R. Caivano, et al., Superconductor Science and Technology 22, 014004+ (2009), A. Ricci et al. Journal of Superconductivity and Novel Magnetism 22, 589 (2009)) where the Fermi level is tuned to a electronic topological transition in one of the subbands by doping, pressure or substitutions. Here we present the calculation of the Tc amplification by shape resonance or Feshbach resonance in a superlattice of layers in a narrow range where the chemical potential is tuned to the electronic topological transition as measured recently by NMR (H. Shishido et al. arXiv:0910.3634v1). The computer code tested now in the diborides and pnicitdes can be used for material design of new high Tc superconductors.

Antonio Bianconi
Sapienza University of Rome, Italy

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