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**Manipulating superconducting tendency in ruthenates through Fermi surface engineering** YI-TING HSU, JIAN-HUANG SHE, BULAT BURGANOV, CAROLINA ADAMO, DARRELL SCHLOM, KYLE SHEN, EUN-AH KIM, Cornell University — $Sr_2RuO_4$ is the leading material candidate for topological triplet superconductivity yet its low transition temperature ($T_c$) limits experimental investigation of the system. One of the leading proposals for the mechanism of the observed superconductivity is the one dimensional band driven superconductivity mediated by antiferromagnetic fluctuations. Within this proposal a perturbative RG approach on a microscopic model with purely repulsive interactions yielded dominant triplet pairing tendency. In this approach the fermiology plays a key role in tilting the balance among different pairing possibilities and the superconducting $T_c$. This implies one can manipulate superconductivity through Fermi surface engineering. Motivated by the recent experimental advance in the growth of $Ba_2RuO_4$ films where an isovalent substitution of $Sr^{2+}$ by $Ba^{2+}$ produces negative chemical pressure, we investigate how the resulting changes in Fermi surface affect superconducting instability using the perturbative RG approach. We take the band structure fitted to Fermi surface measured using angle resolved photoemission spectroscopy as our input. We then compare the results to known effects of hydrostatic pressure.

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