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Spectroscopic signatures of FFLO physics in disordered superconductors in the presence of spin-exchange fields[1] YEN LEE LOH, NANDINI TRIVEDI, The Ohio State University — We present Bogoliubov-de Gennes (BdG) results on the disordered attractive Hubbard model with a Zeeman field [1,2]. Near the Chandrasekhar-Clogston field scale, we find disordered Larkin-Ovchinnikov states, which have an inhomogeneous electronic structure involving unpolarized superconducting regions and polarized insulating regions. The former regions have a gapped local density of states (LDOS), whereas the latter regions contribute states within the gap. The total density of states has a soft gap and provides a distinct signature of modulated superconducting phases. Our results may help to understand the origin of the finite density of states at zero-bias in tunneling experiments on exchange-biased superconducting films [3].
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[3] G. Catelani, Y. M. Xiong, X. S. Wu, and P. W. Adams, Phys. Rev. B 80, 054512 (2009)

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Yen Lee Loh
The Ohio State University

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