

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**Magnetic edge states and mixed-parity pairing in spin-triplet superconductors**<sup>1</sup> MARIO CUOCO, PAOLA GENTILE, CANIO NOCE, CNR-SPIN and Dipartimento di Fisica “E. R. Caianiello”, Università di Salerno, I-84084 Fisciano (Salerno), Italy, ILYA VEKHTER, Department of Physics and Astronomy, Louisiana State University, Baton Rouge, Louisiana, 70803, USA, ALFONSO ROMANO, CNR-SPIN and Dipartimento di Fisica “E. R. Caianiello”, Università di Salerno, I-84084 Fisciano (Salerno), Italy — We show that a spontaneous magnetic moment may appear at the edge of a spin-triplet superconductor if the system allows for pairing in a subdominant channel and non-uniform spatial profile. To unveil the microscopic mechanism behind such effect we combine numerical solution of the Bogoliubov-De Gennes equations for a tight-binding model with nearest-neighbor attraction, and the symmetry based Ginzburg-Landau approach. We find that a modulation of the electronic density near the edge of the system leads to a non-unitary superconducting state where spin-singlet pairing coexists with the dominant triplet superconducting order. We demonstrate that the spin polarization at the edge appears due to the inhomogeneity of the non-unitary state and originates in the lifting of the spin-degeneracy of the Andreev bound-states. For chiral spin-triplet superconductors spin current flows along the interface and surface charge currents exhibit anomalous dependence on the magnetization. - A. Romano, P. Gentile, C. Noce, I. Vekhter, M. Cuoco, Phys. Rev. Lett. 110, 267002 (2013).

<sup>1</sup>This research has received funding from the EU -FP7/2007-2013 under grant agreement N. 264098 - MAMA, and was supported in part by US NSF via Grant No. DMR-1105339

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Date submitted: 14 Nov 2013

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