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The impact of boundary shaping on reverse-field-pinch equilibria[1]
CARMEN MIELE, ANDREW WARE, University of Montana — This work explores the impact of boundary shaping on access into and out of quasi-single helicity states in reverse-field-pinch (RFP) plasmas. Experiments have shown that RFP plasmas can self-organize to a quasi-single helicity equilibrium with a helical axis. These states have improved confinement and lower magnetic turbulence levels compared to a standard RFP plasma [D.F. Escande, et al., *Phys. Rev. Lett.* **85**, 1662 (2000)]. The VMEC code can obtain these similar equilibria with a helical axis and a symmetric boundary [J.D. Hanson, et al., *Nucl. Fusion* **53**, 083016 (2013)]. These equilibria all have circular, or nearly-circular cross-sections. In this work we analyze the impact of 2D-shaping of the boundary on RFP equilibria. Particular attention is paid to the impact on access to quasi-single helicity states.

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Andrew Ware
University of Montana

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