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Electron Kelvin-Helmholtz Instability and Generation of Demagnetized Electron Rings PAUL CASSAK, West Virginia University, HOMA KARIMABADI, University of California, San Diego, VADIM ROYTERSHTEYN, SciberQuest, Inc., WILLIAM DAUGHTON, Los Alamos National Laboratory, JACK SCUDDER, University of Iowa, BURLEN LORING, Lawrence Berkeley National Laboratory — Recent simulations of reconnection indicate the formation of long demagnetized electron layers which can become unstable to secondary island formation. When the current sheet is asymmetric, these layers can also develop velocity shear in the electrons. While there has been significant work on ion scale velocity shear driven Kelvin-Helmholtz (KH) instabilities, there has been little work on electron scale KH. Here we consider such a configuration using full particle and two-fluid simulations. We find that in the fully kinetic simulations, electron KH leads to formation of rings of current. The comparison between fully kinetic and two-fluid simulations will be presented and the relevance of KH to formation of flux ropes will be discussed.

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