

Abstract Submitted  
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**Measurements of Scrape-Off Layer Current (SOLC) Structures and Edge Magnetic Perturbations in HBT-EP<sup>1</sup>** A. SAPERSTEIN, J.P. LEVESQUE, J.W. BROOKS, G.A. NAVRATIL, M.E. MAUEL, Columbia University — Recently installed poloidal arrays of scrape-off layer current (SOLC) sensors on HBT-EP have found that the currents flowing between the plasma edge and the walls have global helical structures that correlate well with kink and tearing mode fluctuations. The phase relationships between these current structures and magnetic fluctuations during the pre-disruption phase of the plasma are seen to depend on plasma equilibrium parameters and the type of MHD instability present at the time, with the currents being in phase with either the poloidal or radial field at the location of the current sensor. In some cases, these relationships have been found to vary sensor to sensor, implying that the geometry of the system is likely playing a significant role. These phase relationships are analyzed in the contexts of potential current driving mechanisms, and provide insight into how discharge parameters and instabilities can influence SOLC structures.

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