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**Internal Kink Instability during Off-Axis Electron Cyclotron Current Drive in the DIII-D Tokamak**<sup>1</sup> K.L. WONG, L.C. JOHNSON, Princeton Plasma Physics Laboratory, T.C. LUCE, M.S. CHU, C.C. PETTY, P.A. POLITZER, R. PRATER, R.J. LA HAYE, R.T. SNIDER, General Atomics, L. CHEN, University of California, Irvine, R.W. HARVEY, CompX, M.E. AUSTIN, University of Texas — Experimental evidence is reported of an internal kink instability possibly driven by barely trapped suprathermal electrons produced in off-axis ECCD experiment on the DIII-D tokamak. It occurs in plasmas with an evolving safety factor profile  $q(r)$  when  $q_{\min}$  approaches 1. This instability is most active when ECCD is applied on the high-field-side of the flux surface. It has  $m/n = 1/1$  with a bursting behavior. In positive magnetic shear plasmas, this mode becomes the fishbone instability. The observation can be qualitatively explained by the drift reversal of the barely trapped suprathermal electrons. This explanation will be compared with calculation of the nonthermal electron distribution function from the CQL3D Fokker-Planck code.

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Prefer Oral Session  
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Special instructions: DIII-D Contributed Oral Session, immediately following CC Petty

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