

# Internal Kink Instability during Off-Axis Electron Cyclotron Current Drive in the DIII-D Tokamak

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Experimental evidence is reported of an internal kink instability possibly driven by a new mechanism: barely trapped suprathermal electrons produced by off-axis ECH 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 a bursting behavior with poloidal/toroidal mode number =  $m/n = 1/1$ . In positive magnetic shear plasmas, this mode becomes the fishbone instability. This observation can be qualitatively explained by the drift reversal of the barely trapped suprathermal electrons.

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