

**Abstract Submitted for the 54th Annual Meeting  
Division of Plasma Physics  
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Category Number and Subject: 5.6.2. DIII-D Tokamak

Theory     Experiment

**ELM-Like Events Excited by the Off-Axis-Fishbone Mode and Accompanied by Electron Density Snake,\*** M. Okabayashi, W.M. Solomon, *Princeton Plasma Physics Laboratory*; G. Matsunaga, Japan Atomic Energy Agency; J.R. Ferron, J.S. deGrassie, G.L. Jackson, R.J. La Haye, T.C. Luce, D.C. Pace, E.J. Strait, A.D. Turnbull, M.A. Van Zeeland, *General Atomics*; J.M. Hanson, F. Turco, *Columbia U*; W.W. Heidbrink, *University of California Irvine*; C.T. Holcomb, M.J. Lanctot, *Lawrence Livermore National Laboratory*; Y. In, *FAR-TECH, Inc.*; Y.Q. Liu, *Euratom/CCFE Fusion Association* – Fusion reactors require high confinement of energetic particles (EPs) to achieve fusion gain and prevent wall damage. However, EPs can excite various harmful modes. Recent high beta exploration in DIII-D shows that the EP-driven Off-axis-Fishbone Mode (OFM) triggers an Edge Localized Mode (ELM)-like event causing massive wall material (carbon) influx preventing high-beta performance. This event is accompanied by bursting density perturbations observed by the CO<sub>2</sub> interferometer, with characteristics of an ideal MHD-type “electron density-snake”. Analysis indicates that the OFM is necessary for the formation of the snake, but that the snake can survive after the OFM decays. The role of the snake in the massive carbon influx event is investigated.

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