

Abstract Submitted
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Formation and stability of impurity-induced snakes in Alcator C-Mod LUIS F. DELGADO-APARICIO, PPPL, R. GRANTEZ, J. RICE, Y. PODPALY, MIT-PSFC, W.A. COOPER, CRPP, M.L. REINKE, L. SUGIYAMA, S. WOLFE, MIT-PSFC, M. BITTER, D. GATES, E. FREDRICKSON, PPPL, M. GREENWALD, MIT-PSFC, K. HILL, PPPL, E. MARMAR, MIT-PSFC, N.A. PABLANT, S. SCOTT, R. WILSON, PPPL — Impurity-induced $m = 1$ snakes are observed in Alcator C-Mod, caused by the release of molybdenum impurities from the tiles covering the vacuum vessel. Using AXUV bolometers, the SXR tomographic arrays and a High-Resolution X-ray imaging spectrometer it was possible to determine that $(n_{Mo}/n_e)_{max} \sim 0.1\%$ before the snake formation, which is responsible for a factor of two increase in resistivity from its impurity-free case. The saturated island width can depend on a stabilizing Δ' term and the local changes of dZ_{eff} and dP_{rad} , while its stability criteria are satisfied by the measured enhanced plasma pressure and resistivity on the center of the island, in agreement with compressible resistive MHD models. The possibility that the snake is due to an MHD equilibrium with a 3D helical core with axisymmetric boundary conditions will also be discussed. Supported by USDoE DE-FC02-99ER54512 at C-Mod and DE-AC02-09CH11466 at PPPL.

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