

Abstract Submitted
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Studies of impact of plasma shaping on edge localized modes with a nonlinear code BOUT++¹ G.Q. LI, Institute of Plasma Physics, CAS, X.Q. XU, Lawrence Livermore National Laboratory, P.B. SNYDER, A.D. TURNBULL, General Atomics, T.Y. XIA, Institute of Plasma Physics, CAS — The plasma shaping has important effects on the edge localized modes (ELMs). In this work, with the 3-field BOUT++ code, we study the impact of the plasma shaping on the ELMs. Three kinds of typical plasma shapes are studied: circular (cbm), elongated (dbm) and shaped with X-point (meudas). Our calculations show that the shaped plasma and the X-point geometry have stabilizing effect on the ELMs. For linear ideal MHD calculation we benchmark BOUT++ results with ELITE and GATO codes. Then we study the role of non-ideal effects such as resistivity on the ELMs for the X-point geometry. Also the nonlinear calculations are carried out to study the impact of plasma shape on the ELM size.

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