

Abstract Submitted  
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**A feasibility study of RFX-mod2 tokamak equilibria scenarios with DEMO-like shape conditions and negative triangularity** DOMENICO ABATE, GIUSEPPE MARCHIORI, Consorzio RFX, PAOLO BETTINI, University of Padova — RFX-mod device has been operated as circular and shaped tokamak. An upgrade of the machine assembly is now being implemented, dubbed RFX-mod2. The vessel will be removed, graphite tiles will be attached to the stabilizing shell and the support structure will be vacuum tight. Thus, shell-plasma radius ratio decreases and the shell will be the conducting structure nearest to the plasma. An improved diagnostic system would allow a better control of both plasma shape and H-mode transition. We present a feasibility study on new operational scenarios with the aim of increasing plasma performances by acting on the plasma shape. Thus, new D-shaped plasma equilibria with DEMO-like plasma shape parameters (i.e.  $\delta > 0.3$ ,  $\kappa > 1.5$ ) are investigated with the IET (Inverse Equilibrium Tool) code, including the option of single/multiple X-points. In the same way, we investigated the possibility of reversing the triangularity of such plasmas. Thanks to its engineering flexibility, RFX-mod2 would allow to explore a wide window of shape parameters with low requirements on active coil currents.

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