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Nonlinear Stability Behaviour of the Rotation Dynamics in the Collisional Tokamak Edge Layer CUMA YARIM, UMUR DAYBELGE, Istanbul Technical University, Faculty of Aeronautics and Astronautics, Turkey, ALBERT NICOLAI, Institut für Plasmaphysik, Forschungszentrum Jülich, Germany — Toroidal and poloidal rotations of a collisional tokamak edge plasma with steep temperature and density gradients are investigated via the fluid equations. In the stationary case, multiple valuedness of the poloidal velocity near the separatrix and its catastrophic properties are studied in scope of the theory. The effects of stochasticity in temperature distribution on both toroidal and poloidal speeds and trajectory bifurcations in phase space are discussed.

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