

Abstract Submitted
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Density profile control using compact toroid injection in STOR-M Tokamak¹ TAKUMI ONCHI, DAZHI LIU, CHIJIN XIAO, AKIRA HIROSE, University of Saskatchewan, TOMOHIKO ASAI, Nihon University, SEAN WOLFE, Plasmionique — The Saskatchewan TORus Modified (STOR-M) tokamak has a Compact Torus (CT) injector which allows tangential injection of high density plasmoid. The objectives of CT injection (CTI) into the core of plasma are to fuel tokamaks and also optimize the bootstrap current in the future reactors by control of the plasma pressure gradient. Measurement of soft X-ray bremsstrahlung emission profile have verified that CT particles are deposited in the core region from outside and steeper density gradient is generated via a balancing process after the asymmetric density profile is formed in STOR-M. The major radius of the core plasma is shifted outward and stays in equilibrium until the end of discharge. H alpha line-emission considerably decreases in the core region and the high emitting area with low temperature plasma exists in the edge region. A few milliseconds seconds after these altered profiles of the density and the emission by CTI are generated, stronger edge radial electric field as well as H-mode appears and the average electron density peaks.

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