

Abstract Submitted
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Magnetized plasma flow injection into tokamak and high-beta compact torus plasmas HIROYUKI MATSUNAGA, YUUKI KOMORIYA, HIROYASU TAZAWA, TOMOHIKO ASAI, TSUTOMU TAKAHASHI, LOREN STEINHAUER, HIROTOMO ITAGAKI, TAKUMI ONCHI, AKIRA HIROSE — As an application of a magnetized coaxial plasma gun (MCPG), magnetic helicity injection via injection of a highly elongated compact torus (magnetized plasma flow: MPF) has been conducted on both tokamak and field-reversed configuration (FRC) plasmas. The injected plasmoid has significant amounts of helicity and particle contents and has been proposed as a fueling and a current drive method for various torus systems. In the FRC, MPF is expected to generate partially spherical tokamak like FRC equilibrium by injecting a significant amount of magnetic helicity. As a circumstantial evidence of the modified equilibrium, suppressed rotational instability with toroidal mode number $n = 2$. MPF injection experiments have also been applied to the STOR-M tokamak as a start-up and current drive method. Differences in the responses of targets especially relation with beta value and the self-organization feature will be studied.

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