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Effects of Magnetic Geometry on Pellet Fueling in DIII-D and CFETR Plasmas[1] JIE ZHANG, JIALE CHEN, JIANGANG LI, Institute of Plasma Physics, Chinese Academy of Sciences, PAUL PARKS, LANG LAO, JOSEPH MCCLENAGHAN, WEN WU, General Atomics, GENERAL ATOMICS TEAM, INSTITUTE OF PLASMA PHYSICS, CHINESE ACADEMY OF SCIENCES TEAM — Pellet injection is a promising option to provide the necessary fueling for a tokamak reactor. In this work, self-consistent simulations are carried out to explore the effects of magnetic geometry on pellet ablation and deposition in lower single-null, double-null, positive and negative triangularity configurations. The OMFIT STEP workflow is applied, which predicts pedestal with EPED, core profiles with TGYRO/ONETWO, and equilibrium with EFIT. The newly developed Pellet Ablation Module (PAM) includes a comprehensive deposition model with magnetic drift effects. Combined ONETWO and PAM simulations show that deeper fueling by high-field side (HFS) injection is boosted in all cases because the pellet ablation rate is slowed by the higher magnetic field. Initial predictions find that vertical HFS pellet injection into negative triangularity plasma could achieve deeper core fueling than that in positive ones, which may provide an attractive fueling solution.

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