

Abstract Submitted
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Pellet Fueling R&D for ITER¹ L.R. BAYLOR, S.K. COMBS, T.C. JERNIGAN, W.A. HOULBERG, D.A. RASMUSSEN, ORNL, P.B. PARKS, GA — Pellet injection is the primary fueling technique planned for fueling of ITER burning plasmas. Efficient fueling with D-T is a requirement for achieving high fusion gain and it cannot be achieved with gas fueling alone. Injection of pellets from the inner wall has been shown on present day tokamaks to provide efficient fueling and is planned for use on ITER. Modeling of the fueling deposition from inner wall pellet injection using the Parks ExB drift model [1] indicates that reasonably sized pellets have the capability to fuel well inside the separatrix. Scaling of mass deposition from this model shows a strong edge temperature pedestal and pellet size dependence. Isotopically mixed D-T pellets can provide efficient tritium fueling that will minimize tritium wall loading when compared to gas puffing. Currently the performance of the ITER inner wall guide tube design is under test. The results of these tests and their implication for ITER fueling will be discussed. The ITER pellet injection technology requirements and remaining development issues will be presented along with a conceptual design for implementation on ITER. [1] Parks, P.B., Baylor, L.R., Phys. Rev. Lett. **94** (2005) 125002.

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