

## PELLET FUELING OF ITER BURNING PLASMAS\*

L.R. Baylor<sup>1</sup>, S.K. Combs<sup>1</sup>, T.C. Jernigan<sup>1</sup>, W.A. Houlberg<sup>1</sup>, S. Maruyama<sup>2</sup>,  
L.W. Owens<sup>1</sup>, P.B Parks<sup>3</sup>, D.A. Rasmussen<sup>1</sup>

<sup>1</sup>Oak Ridge National Laboratory, Oak Ridge, TN, USA

<sup>2</sup>ITER Central Team, Garching, Germany

<sup>2</sup>General Atomics, San Diego, CA, USA

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 [1,2]. Modeling of the fueling deposition from inner wall pellet injection using the Parks ExB drift model [3] indicates that pellets have the capability to fuel well inside the separatrix. Gas fueling calculations show very poor fueling efficiency due to the high density and wide scrape off layer. Isotopically mixed D-T pellets can provide efficient tritium fueling that will minimize tritium wall loading when compared to gas puffing. During the ITER EDA the U.S. was responsible for ITER pellet fueling system design and is in good position to resume this role. 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] Lang, P.T., et al, Phys. Rev. Lett. **79**, 1478 (1997).

[2] Baylor, L.R., et al., by Phys. Plasmas **7** (2000) 1878.

[3] Parks, P.B., Baylor, L.R., Phys. Rev. Lett. **94** (2005) 125002.

[4] Combs, S.K., et al., these proceedings.

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\* Work supported by U.S. DOE under Contracts DE-AC05-00OR22725 and DE-AC03-99ER54463.