Abstract Submitted
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ITER Plasma Control System Development JOSEPH SNIPES, ITER Organization, ITER PCS DESIGN TEAM — The development of the ITER Plasma Control System (PCS) continues with the preliminary design phase for 1st plasma and early plasma operation in H/He up to I_p =15 MA in L-mode. The design is being developed through a contract between the ITER Organization and a consortium of plasma control experts from EU and US fusion laboratories, which is expected to be completed in time for a design review at the end of 2016. This design phase concentrates on breakdown including early ECH power and magnetic control of the poloidal field null, plasma current, shape, and position. Basic kinetic control of the heating (ECH, ICH, NBI) and fueling systems is also included. Disruption prediction, mitigation, and maintaining stable operation are also included because of the high magnetic and kinetic stored energy present already for early plasma operation. Support functions for error field topology and equilibrium reconstruction are also required. All of the control functions also must be integrated into an architecture that will be capable of the required complexity of all ITER scenarios. A database is also being developed to collect and manage PCS functional requirements from operational scenarios that were defined in the Conceptual Design with links to proposed event handling strategies and control algorithms for initial basic control functions. A brief status of the PCS development will be presented together with a proposed schedule for design phases up to DT operation.

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