Abstract Submitted for the 54th Annual Meeting
Division of Plasma Physics
October 29 through November 2, 2012
Providence, Rhode Island

Category Number and Subject:

[ ] Theory [X] Experiment

Status of the ITER PCS Conceptual Design,* M.L. Walker, *General Atomics* and ITER Plasma Control Group – Since 2010, an ITER Plasma Control System (PCS) conceptual design activity has been underway involving participants from nearly all ITER partners. The PCS Conceptual Design Review is scheduled for November 2012, at which time functional requirements generated by this activity will be reviewed. The ITER PCS must integrate control of multiple plasma parameters that are controlled separately on present devices, including plasma current, shape, position, stored energy, beta, radiation, impurity fraction, plasma profiles, multiple instabilities, and interactions with plasma facing components, as well as new parameters like fusion power, all while avoiding triggering device protection systems. Plasma control will require technologies which do not yet exist for fusion experiments. Performance and reliability requirements are an order of magnitude greater than present fusion devices due to the nuclear mission and potential consequences of control failure. We will describe experimental physics and operational objectives as defined by the ITER Organization and summarize requirements for the PCS and related systems to satisfy these.

*Work supported by US Department of Energy under DE-FC02-04ER54698.