Abstract Submitted for the Forty-Seventh Annual Meeting
Division of Plasma Physics
October 24–28, 2005, Denver, Colorado

Category Number and Subject: 5.6.2 DIII-D tokamak

[ ] Theory [X] Experiment

**Upgrades to the DIII-D Facility during the Long Torus Opening Activities Period in FY05-06,*** J.F. Tooker and P.I. Petersen for the DIII-D Team, *GA* – During FY05 and FY06 the DIII-D facility has put its normal two periods for construction, refurbishment and maintenance back to back in order to establish a sufficiently long period to make major hardware upgrades. These upgrades, which are driven by physics needs, include modifying the lower divertor, rotating one of the existing four neutral beam lines, and adding three 1 MW long pulse gyrotrons. The new lower divertor will allow pumping of high triangularity plasmas needed to study the ultimate performance of highly shaped plasmas. There are several motivations for rotating one of the neutral beam lines: the physics of plasma rotation, QDB regime with central co-rotation, RWM stability with low rotation, etc. The long pulse gyrotrons will replace the aging short pulse Russian gyrotrons. In addition to these high priority tasks, we will start upgrade of the toroidal coil return bus and upgrade and modernize the infrastructure, which includes replacing two cooling towers and installing a new high voltage transformer for the auxiliary heating systems.

*Work supported by U.S. DOE under DE-FC02-04ER54698.

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