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Particle Control and Carbon Transport Experiments on DIII-D,* S.L. Allen, *LLNL*; E.A. Unterberg, *ORISE*; N.H. Brooks, M.A. Mahdavi, *GA*; D.G. Whyte, *MIT*; J.W. Davis, A.A. Haaz, B. Fitzpatrick, *U. Toronto* — As part of the 2009 Joint Research Target, DIII-D, along with MIT and NSTX have completed a series of experiments on particle control and transport. On DIII-D, both dynamic (calculated particle balance) and static (pumps closed or regenerated) particle balance experiments were carried out in both L- and H-mode with cryopumping. We find that the exhaust obtained from both techniques is comparable. We find that the uptake can be large in ohmic and L-mode, but in H-mode, the wall retention flux is very small, which is promising for long pulse burning plasma experiments. Also, in support of tritium control research for ITER, we have started a process to qualify the DIII-D internal components for an anticipated air bake (350°, 10 Torr) in 2010. We find issues with some copper components, but most components are compatible. Air baking removes the co-deposited carbon that can be rich in tritium in ITER with carbon walls.

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