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Category Number and Subject:

☐ Theory ☒ Experiment

Automated and Between-Shot Analysis of DIII-D Discharges,* R. Prater, X. Lee, S. Flanagan, R.J. Groebner, L.L. Lao, Q. Peng, D.P. Schissel, H.E. St John, M.R. Wade, *General Atomics* – Productivity of experiments in DIII-D has been improved by developing more detailed profile analysis between shots. The ONETWO transport code is now run routinely between shots to provide reasonably accurate evaluation of profiles as a function of time of heating power, torques, fast ion density, bootstrap current fraction, noninductive fraction, Mach number, and many other quantities of interest to the experimenter. For example, the alignment of electron cyclotron current drive with a rational q-surface and an evaluation of the peak driven current density compared with the local bootstrap current as a function of time as the plasma beta is increased is extremely useful in guiding experiments on control of neoclassical tearing modes. Overnight the ONETWO runs are repeated with improved models that are too lengthy for between-shot use. User runs with different profiles or equilibria may also be stored in MDSplus for general use. These results provide an excellent starting point for off-line analysis, for example using GYRO.

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