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Modeling of Steady-State Non-Inductive ITB Discharges with Application to DIII-D[1] H.E. ST JOHN, L.L. LAO, General Atomics, M. MURAKAMI, ORNL, J.E. KINSEY, Lehigh U. — Establishment of near steady-state high-performance discharges with internal transport barriers in the electron and ion heat and the toroidal momentum channels is investigated using the GLF23 and Weiland confinement models. A combination of neutral beam and electron cyclotron heating and current drive is used to optimally shape the current profile for near non-inductive steady-state operation. The GLF23 and Weiland confinement models have had some success in modeling DIII-D discharges and consequently represents our best choice for DIII-D AT scenario development at this time. By starting the modeling with actual high-performance DIII-D discharges, we expect to obtain experimentally realized results. The stability of our simulations is monitored with the BALOO and GATO codes and rf heating and current drive is modelled with TORAY-GA. This computationally instensive modeling approach requires concurrent computing methods in order to be used routinely. We discuss our efforts to date in producing a parallel computational transport environment.

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☐ Prefer Oral Session
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