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Rotation Profiles in DIII-D From Neoclassical Viscosity[1] R.W. JOHNSON, W.M. STACEY, Fusion Research Center, Georgia Institute of Technology, J. MANDREKAS, Office of Fusion Energy Sciences, US DoE — Radial and poloidal profiles of rotation and density are calculated using neoclassical viscosity for a variety of discharges in DIII-D. Several confinement regimes (L-mode, L-mode with Internal Transport Barrier, H-mode, and H-mode with Quiescent Double Barrier) are investigated. Predicted toroidal velocities agree reasonably well with measured values for all regimes. Poloidal density asymmetries remain within 10-20% of the flux-surface average value. Toroidal velocity is shown to have a poloidal profile rather than rotating rigidly. Transport of angular momentum is shown to arise mostly from gyroviscosity whilst leaving room for other (anomalous) transport mechanisms.

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