Energy Transport Analyses of DIII-D High-β_P EAST-demonstration Discharge

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Energy transport analyses of DIII-D high-β_P EAST-demonstration discharges have been performed by usingthe TGYRO transport package with TGLF turbulent and NEO neoclassical transport models under the OMFIT integrated modeling framework. TGYRO/TGLF/NEO analysis results indicate that ion energy transport is dominant by neoclassical transport and the predicted ion temperature profiles agree closely with the experimental measured profiles. For these high-β_P discharges, the electron turbulent energy transport is under-predicted by TGLF/TGYRO/NEO over the whole core plasma .The experimental ion and electron temperature profiles can be predicted with TGYRO/TGLF/NEO by empirically increasing the saturated turbulence level for high-wavenumber electron temperature gradient (ETG) driven modes used in TGLF. Both the ion and electron energy transport are largely insensitive to reductions in the $E\times B$ flow shear stabilization. The ion energy transport is still on the neoclassical level even though without the $E\times B$ flow shear stabilization effect.

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