ABSTRACT

Strong, outward convection of low Z impurity ions has been observed in DIII–D plasmas which have reduced anomalous transport, a weak density gradient, and a strong ion temperature gradient. Quantitative agreement is found between the measured transport properties (namely, diffusivity and convective velocity) and the predictions of collisional transport theory, including the Z dependence. Analysis of the theoretical predictions indicate that the observed outward convection results from "temperature screening" of the impurities by the main ion temperature gradient.