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SOL and Divertor Fluctuations and Transport During Detachment JOSE BOEDO, DMITRY RUDAKOV, IGOR BYKOV, ERIC HOLLMANN, University of California, San Diego, ADAM MCLEAN, CHARLES LASNIER, lawrence livermore national laboratory, HUIQIAN WANG, ANTHONY LEONARD, General Atomics, JONATHAN WATKINS, Sandia National Laboratory, SANDIA NATIONAL LABORATORY COLLABORATION, GENERAL ATOMICS COLLABORATION, LAWRENCE LIVERMORE NATIONAL LABORATORY COLLABORATION, UNIVERSITY OF CALIFORNIA SAN DIEGO TEAM — Turbulence in the DIII-D divertor and main chamber is characterized in attached and detached L and H-mode discharge conditions revealing the impact of distinct physics on each of particle and energy transport. Plasma density is increased in successive repeat discharges until T_e at the divertor plate is ˜2-5 eV. As T_e drops at the plate, the heat flux profile width, measured by IRTV, varies little while the particle flux profile, measured with probes as , narrows by a factor of 2 until detachment. Density fluctuations increase 50-100% as density increases towards detachment, but relative fluctuation levels, actually drop by 10X. However, for a given density, near-plate fluctuation levels always increase with divertor T_e, suggesting that heat is the free energy source feeding the fluctuations.

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