

## Observation of a Spontaneous Particle-Transport Barrier in the HL-2A Tokamak

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Using the profile analysis, the density perturbation transport analysis, and the Doppler reflectometry measurement, for the first time a spontaneous and steady-state particle-transport barrier has been evidenced in the Ohmic plasmas in the HL-2A tokamak with no externally applied momentum or particle input except the gas puffing. A threshold in density has been found for the observation of the barrier. The particle diffusivity is well-like, and the convection is found to be inward outside the well and outward inside the well. The formation of the barrier coincides with the transition between the trapped electron mode and the ion temperature gradient driven mode.