

Abstract Submitted
for the DPP01 Meeting of
The American Physical Society

Sorting Category: (Experimental)

Effect of Toroidal Ripple on Impurity Transport in Barrier Conditions in Tore Supra,* W.R. Hess, V. Basiuk (*CEN-Cadarache*), J.T. Hogan (*ORNL*) – Charge exchange recombination spectroscopy (CXRS) measurements of time-dependent radial profiles of carbon density show an interesting transient behavior during high-power (4 MW) ICRH heating in Tore Supra. After a high power Lower Hybrid heating phase, which was intended to produce Internal Transport Barrier conditions, the LH heating is stopped and high power ICRH commences. Subsequent to this, during a brief transient (~50 msec) power reduction from 4 to 2 MW, the central impurity density drops sharply, then followed by a re-establishment of a peaked density profile when the power returns to full value. Since a significant fraction of RF power is lost to ripple, the relation between the non-ambipolar ripple flux and the observed rapid change in impurity transport seems indicated. Direct measurement of the ripple ion loss flux shows that the magnitude and time dependence of ripple loss is consistent with the observed change in central radial flux of impurities. Modeling of the transient behavior has been carried out using the PPPL MIST code with post-processing from the ORNL NCLASS neo-classical multi-species impurity flux evaluation to evaluate the non-ambipolar effects.

*Work supported by the U.S. DOE under Contracts DE-AC05-00OR22725.

- Prefer Oral Session
 Prefer Poster Session

Date submitted:

Electronic form version 1.4