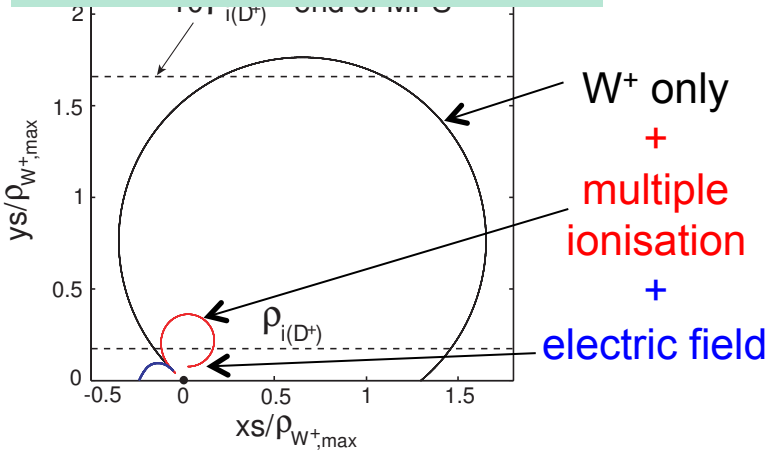
# Influence of a Tungsten Divertor on the Performance of ITER H-mode Plasmas [TH/P3-29]

- Controlled ELMs lead to a large increase of the W sputtering in the ITER divertor.
- A very large fraction (>99.99%) of the sputtered W is immediately re-deposited without leaving the magnetic pre-sheath due to the large $T_{div}$ and the low initial energy of sputtered W.
- Plasma contamination by W sputtering during ELMs is negligible.

- In the edge transport barrier, the transport of W is dominated by neoclassical outward drifts in-between ELMs for most ITER scenarios, which have acceptable divertor power loads and low W sputtering rates.
- Thus, ELMs are not needed to drive W out of the pedestal region.

## W ion orbits near target plate




## $n_{sep,min}$ for outward drift dominated transport of W

$n_{sep,min}$ for control of $P_{target}$ $T_{div}$