SOL profile and fluctuations in different divertor recycling conditions in H-mode plasmas

- H-mode inter-ELM profile evolutions investigated on ASDEX upgrade, JET and TCV at different level of gas fueling
- In all the cases strong relation observed between achieved divertor neutral pressure, divertor temperature and separatrix density $n_{e, sep}$
- Changes of separatrix parameter cause an increase of the normalized collisionality $\alpha_t \propto R q^2 n_e Z_{eff} T_e^{-2}$
- Inter-ELM shoulder formation at higher $p_{div} \rightarrow \alpha_t$

- Higher $\alpha_t$ achieved because of $n_{e, sep}$ dependence on $p_{div}$ causes enhanced filamentary activity in the far SOL
- Higher blob frequency $f_b$, and higher filament radial velocity observed at larger $p_{div}$ or equivalently higher $\alpha_t$