



(i) ELM control/small ELM regimes (ii) Divertor solution

ELM control/small ELMs

- ELM suppression with resonant mag. perturbations (RMP) at ITER collisionality achieved on ASDEX Upgrade.
- Target heat flux of type-I ELMs mainly a function of pedestal pressure \times minor radius.
 - Also for “mitigated” ELMs with RMP, pellets and vertical kicks.
- Good agreement of measurements with plasma response modelling during RMP (EX/P6-25)
 - MARS-F, VMEC and JOEREK.
- RMP ELM mitigation successfully transferred to He discharges.
 - Absolute density may be important!
- Strong evidence for role of high SOL density for access to small-ELM regimes.

Divertor Solution

- X-point radiator could facilitate detachment control.
- Radiation region in advanced configurations can be trapped in the SOL between (Snowflake) or at X-points (X-divertor) (EX/2-3).
- Onset of detachment in advanced configurations mostly determined by poloidal flux expansion.
 - No clear trend with total flux expansion observed contradicting theoretically expectations.
- Filaments only carry a small fraction of the power balance into the far SOL (EX/P4-31) .
- Onset of enhanced cross field transport in the SOL studied on AUG (EX/2-2), MAST (EX/P4-31) and TCV (EX/P8-26).
 - Enables theory comparison over wide parameter space.



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