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Filament Transport in the SOL of ASDEX Upgrade

Estimation of Blob-induced Gross Erosion in Different Blob Regimes

Transport regimes of SOL blob filaments
- Blobs measured with Li-BES
- Size and velocity of blobs agree with sheath-connected regime at low densities
- Dramatic increase of convective blob transport at higher densities

Estimation of blob induced gross erosion*):
- Definition: \[ E = \frac{1}{2} c_s \delta n Y \Delta t / n_{PFC} \]
- 2% of a time trace consists of blobs
- AUG plasma with a “pulse length” of one full year
- w/o redeposition, w/o impurities
- Erosion up to 1 mm: critical for first wall!

Conclusion
- Blob dynamics at low density indicates warm ion sheath-connected scaling
- Blob properties change dramatically at high density (resistive blob regime)
- Blob induced erosion for AUG conditions up to 1 mm and larger than background erosion

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