**TG Edge&Divertor**

**Subgroup Fueling & Exhaust**

**He exhaust proposal discussion**

**16.03.2022 from 1610 to 1720**

**Attendees:**

Thierry, Thilo, Victoria, Dieter, Dirk, Felix

**Meeting objective:**

Discuss proposals to determine tau\_p

**He NBI proposals:**

Number of injected particles should be reduced in order to avoid NBI heating.

Reduce the number of injections.

When comparing different configurations, care must be taken in the density profile.

**He Gas proposals:**

Will give a good overview on He penetration.

Core confinement time already covered by Victoria/Felix/Thilos proposal, but analysis still valuable as piggy back to fueling efficiency measurements.

Perhaps include a strike line shift.

A long discussion was held about the different confinement times and their meanings.

Dirk commented to check the literature, in particular of ASDEX regarding a multi reservoir model. Felix shared a three chamber model plus wall:

“The discretization scheme is more than primitive! But it shows the trends, I think. For edge puffs one needs to be a bit carefull with the plasma part (as confined plasma) as the effective confinement can differ depening on the radial location. If the puff is short and the profile is not steady-state yet there are two phases in the decay: an equilibration phase with inward and outward transport and the self-similar decay of the core profile afterwards when the core transport times have passed - except the slowest one.

There is also some algebra to assess the He in the core with fusion and what is necessary to pump the flux.“

Sorry I was so involved in following the discussion, that I didn’t take many notes on this.

Thierry will prepare some slides for next week to continue this discussion.

There was no easy way identified to measure the effective core confinement time.