Physics of expander divertors for Field Reversed Configurations
DMITRI RYUTOV, LLNL, PETER YUSHMANOV, and TAE team, TAE Inc —
The SOL and divertor play a significant role in the operation of TAE experimental
devices: they provide conditions needed for thermal insulation of plasma electrons
from the device ends, allow control of plasma rotation, and contribute to the global
magneto-hydrodynamic stability of the plasma. Better understanding of the physics
processes associated with divertor expanders is necessary for advancing the plasma
parameters to regimes with high electron temperature. The following issues are
addressed in the poster: formation and spatial re-distribution of neutral particles
formed at the end-plates; effects of neutrals on the heat loss from the main plasma,
effects of Charge Exchange on exhaust flow and density distribution in the divertors,
and others. Particular attention is paid to the solution of an idealized benchmarking
problem of the formation of a potential barrier for electrons in the expanders. Work
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