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TRT NEUTRON-PHYSICAL MODEL 2023 (8T, 5MA WITH PORTS SHIELDING) ^{*)}

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New computations of nuclear loads are presented for updated TRT model[1]. The results are compared to [2]. Equatorial ports filling and conceptual diagnostics first wall model were added to the model to reduce nuclear heating at outer parts of toroidal field coils and overall shielding. Neutron source was computed for DD plasma at equilibrium state at $B_0=8T$, $I=5MA$, $T_i=21keV$, $n_e=9.4e19m^{-3}$, with total neutron yield $\approx 10^{17}c^{-1}$.

The computations provide information on neutron and prompt photon fields, heating, prompt SDDR.

The fields are presented as survey meshes and more detailed meshes for ports areas and one of toroidal field coils. One of the ports (№12) models a neutron collimator. Integral nuclear loads are obtained for critical elements of the installation, in particular vacuum vessel and toroidal coil.

The tokamak construction activation is estimated for assumed irradiation scenario.

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References

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^{*)} [abstracts of this report in Russian](#)