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SIMULATIONS OF NEUTRAL INJECTION FOR STEADY-STATE SCENARIO IN TOKAMAK T-15MD *)

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The preliminary study of conditions for obtaining quasi-stationary scenarios in T-15MD tokamak with a fully non-inductive drive has been performed in [1]. It was shown one can obtain using NBICD systems, ECCD, RFCF, the discharges with the current of about 1 MA, plasma temperature of some keV, plasma density of $(3-7)x10^{19}$ m⁻³ and discharge duration of about 20 s. NBI generated current fraction has been computed of about 60%.

In our work we perform the numerical analysis of the effects of the revised updated NBI system for the same steady-state scenarios in T-15MD tokamak on the temperature, density and another plasma properties. We compute the power deposition, safety factor, plasma current, bootstrap current profiles.

It is the first computations for the tokamak T-15MD with NBI heating using additional module of the ASTRA code [2] - NUBEAM [3]. We take into account real updated geometric parameters of the injectors. The results computed with the NUBEAM code are compared with the results obtained with the revised neutral beam module ASTRA/NBI [4] and with the BTR code [5], which is used for the neutral injection design.

References

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