MAGNETIC SHIELDING system models Development for iter neutral beam injectors [[1]](#footnote-1)\*)

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The paper is devoted to the development of magnetic shielding system models for the ITER neutral beam injectors. It is supposed that ITER would have two heating injectors (with an opportunity to install one more) and one diagnostic. The first two injectors will heat the plasma to the temperature of burning of the D-T reaction and provide the current generation in plasma by injecting the fast atoms, the last one will be used for corpuscular plasma diagnostics.

As the reactor operation is quasistationary, the magnetic field reduction system of the injectors combines a passive magnetic shield and a set of active correction coils. Due to strict restrictions on field inside the injectors, precision computations are demanded during the injectors design stage.

The tokamak has been modeled via a set of poloidal field (PF) coils, the central solenoid (CS) and plasma, presented with a circular moveable current filament. The stray field of the tokamak in the injector region has been calculated with the code KLONDIKE [1].

Two-layer passive magnetic shields and correction coils have been modeled with the code KOMPOT [2].

A special attention has been paid to possible gaps between the steel panels of injectors passive magnetic shields due to panels manufacturing and assembly.

A set of the models with different dimensions has been built for the convergence study. It has been shown that the models need to have tens of millions finite elements to provide the required computational accuracy.

References

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1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/XLVII/E/ru/IY-Bazarov.docx) [↑](#footnote-ref-1)