modeling of thermonuclear TARGET compression at laser energy of 1 MJ

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Using the methods of mathematical modeling, we study the possibility of achieving gain in fusion targets (kf) of order 1 with laser energy at the level of 1 MJ. Achieving this level of fusion energy (MJ) is an important step towards research on the creation of a power reactor based on nuclear fusion. Comparative calculations of exposure and contraction of the shell laser targets by direct irradiation by two independent methods [1,2] and shows a good agreement of calculation results.

For comparison, calculations were selected parameters of targets that are not optimal for the results of one-dimensional calculations. The authors chose these parameters to ensure the reliability of the predictions, i.e. shell had moderate values of the aspect ratio () and the compression ratio fuel (CR) level 10 for gas-filled targets, and level 30 for cryogenic. As the target material was taken the polymer, without the inclusion of the functional layers of the heavy metals. However, from these calculations we can conclude the following. The move to direct compression allows to predict achievement gains in the target at level 1.

References

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