

Abstract Submitted  
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**Reactors Power Balance Based on Compact Toroid I.** RO-MADANOV, Bauman Moscow State University, Moscow, Russian Federation — The power balance [1] of the plasma source system based on compact toroid with a pulse mode of formation is considered. Developed model takes into account the time dependence of the processes, in a pulsed mode of operation of the system. Also magnetic configuration shape and nuclei energy distribution fluency were considered [2]. Analytical solution of Grad-Shafranov equation was taken to determine the shape of the separatrix and magnetic fields into the configuration [3]. For practical calculation, program was written. Code is able to calculate volume power reactions in the confined plasma, using as input the geometry of the magnetic field, the cross section of reaction rates and energy distribution of the nuclei.

[1] J.T. Slough, A.L. Hoffman, R.D. Milroy, etc. Transport, energy balance, and stability of a large field-reversed configuration, *Phys. Plasmas*, V. 2. N 6. 1995. P. 2286-2291.

[2] P.R. Goncharov, Practical Calculation of Nuclear Fusion Power for a Toroidal Plasma Device with Magnetic Confinement Proceedings of ITC18, p. 289-295, 2008

[3] Antoine J. Cerfon and Jeffrey P. Freidberg “One size fits all” analytic solutions to the Grad-Shafranov equation, *Phys. Plasmas* p. 17, 2010.

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