

Conceptual Study of Indian Fusion Power Plant

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Abstract

The baseline conceptual study of Indian Fusion Power Plant (IFPP) is being focussed to achieve the electric power without any aggressive physics and engineering assumptions. As the research and development progresses, it will be possible to improve the baseline design for achieving power plant with greater efficiency. A system design code with considerations from engineering and physics issues is being developed for the design of the IFPP with normal/advanced tokamak configurations. Equilibrium and stability of these configurations are being analyzed. The requirement of heating and current drive systems to provide steady state operation is also being computed. The extrapolations from the existing machine database and the DEMO strategy form a part of the inputs to the IFPP design. As the plant availability is the crucial parameter to make the power plant economically viable, innovative designs for breeding blankets and other in-vessel components need to be developed. Preliminary progress in these directions will be presented.