

Abstract Submitted
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Burning plasma regime for Fusion-Fission Research Facility¹

LEONID E. ZAKHAROV, Princeton University, PPPL — The basic aspects of burning plasma regimes of Fusion-Fission Research Facility (FFRF, $R/a = 4/1$ m/m, $I_{pl} = 5$ MA, $B_{tor} = 4 - 6$ T, $P^{DT} = 50 - 100$ MW, $P^{fission} = 80 - 4000$ MW, 1 m thick blanket), which is suggested as the next step device for Chinese fusion program, are presented. *The mission of FFRF is to advance magnetic fusion to the level of a stationary neutron source and to create a technical, scientific, and technology basis for the utilization of high-energy fusion neutrons for the needs of nuclear energy and technology.* FFRF will rely as much as possible on ITER design. Thus, the magnetic system, especially TFC, will take advantage of ITER experience. TFC will use the same superconductor as ITER. The plasma regimes will represent an extension of the stationary plasma regimes on HT-7 and EAST tokamaks at ASIPP. Both inductive discharges and stationary non-inductive Lower Hybrid Current Drive (LHCD) will be possible. FFRF strongly relies on new, Lithium Wall Fusion (LiWF) plasma regimes, the development of which will be done on NSTX, HT-7, EAST in parallel with the design work. This regime will eliminate a number of uncertainties, still remaining unresolved in the ITER project. Well controlled, hours long inductive current drive operation at $P^{DT} = 50 - 100$ MW is predicted.

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