

Advances in the physics studies for the JT-60SA tokamak exploitation and research plan

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Plasma Phys. Control. Fusion **62** (2020) 014009; <https://doi.org/10.1088/1361-6587/ab4771>

Abstract:

JT-60SA, the largest tokamak that will operate before ITER, has been designed and built jointly by Japan and Europe, and is due to start operation in 2020. Its main missions are to support ITER exploitation and to contribute to the demonstration fusion reactor machine and scenario design. Peculiar properties of JT-60SA are its capability to produce long-pulse, high- β , and highly shaped plasmas. The preparation of the JT-60SA Research Plan, plasma scenarios, and exploitation are producing physics results that are not only relevant to future JT-60SA experiments, but often constitute original contributions to plasma physics and fusion research. Results of this kind are presented in this paper, in particular in the areas of fast ion physics, high-beta plasma properties and control, and non-linear edge localised mode stability studies.