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Plans for first plasma operation on Wendelstein 7-X THOMAS SUNN PEDERSEN, Max Planck Institute for Plasma Physics, W7-X TEAM TEAM, TOPICAL WORKING GROUP OP1.1 PHYSICS COLLABORATION[1] — Wendelstein 7-X construction is nearing completion and the commissioning phase has started, in preparation for first plasma. The first plasma operation phase (OP1.1) will be performed entirely without a divertor. Instead, five symmetrically placed inboard graphite limiter stripes will intersect and absorb the convective plasma heat loads. These un-cooled limiter stripes will limit the injected heating energy per pulse to about 2 MJ, for example, 0.5 second pulse length with 4 MW of ECRH heating. These plasmas will serve to commission the main physics tools for the machine, in particular the vacuum system,the diagnostics and the ECRH heating system. OP1.1 will last about 3 months and will, despite the relatively short pulse lengths, provide the opportunity to study a number of interesting phenomena, including limiter scrape-off layer physics, heat pulse propagation, energy, particle, and impurity confinement in the electron root, and measurements and, if necessary, correction of resonant field errors. A progress report on commissioning will be given, and elements of the physics program planned for OP1.1 will be explained, together with a status report on the installation and commissioning of key diagnostics.

[1]Includes participants from EUROFUSION and US-W7-X collaboration

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