

Abstract Submitted  
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**Overview of physics goals for OP1.2a on Wendelstein 7-X<sup>1</sup>**

THOMAS SUNN PEDERSEN, Max Plank Institute for Plasma Physics, W7-X TEAM — Wendelstein 7-X achieved, and in many cases exceeded, the pre-defined goals for its first operation phase, OP1.1. Results include core values of  $T_e = 8$  keV,  $T_i = 2$  keV and  $n_e > 3 \cdot 10^{19} \text{ m}^{-3}$  and confinement times of 100-150 ms [1,2]. The next operation phase, OP1.2a, scheduled to start in fall 2017, features a much more elaborate set of plasma-facing components. 10 inertially cooled graphite test divertor units (TDU) have been installed, as have graphite tiles on all the heat shields and baffles. Upgrades have also been made to heating systems, diagnostics, and particle fueling systems. This will allow for significantly increased pulse lengths, heating power and plasma performance, in particular, higher plasma density, and higher ion temperatures, thereby enabling a much more detailed investigation of the W7-X optimization and significantly higher triple products than achieved in OP1.1. The robustness of the TDU allows for an aggressive exploration of divertor operation scenarios in this phase. The main goals and plans, and, if available, first results of OP1.2a will be presented. [1] T. Sunn Pedersen, et al., Physics of Plasmas **24**, 055503 (2017) [2] R. Wolf, et al., Nuclear Fusion, at press (2017)

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