

# Nuclear design issues of a stellarator fusion power plant with breeder blanket in comparison to tokamaks

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The European Roadmap to the realisation of fusion energy considers the stellarator concept as a possible long-term alternative to a tokamak fusion power plant (FPP). A corresponding R&D programme is conducted by the EUROfusion consortium to advance the stellarator concept with the scientific exploitation of the W7-X experiment. The aim is to optimise the stellarator performance, prove the feasibility for steady-state operation, and, on such a basis, study the prospects of a power producing plant based on the helical-axis advanced stellarator (HELIAS) configuration. An important issue towards this goal is the analysis of specific nuclear issues of a HELIAS type FPP equipped with a tritium breeding blanket. This work addresses these issues based on the achievements of the blanket development work conducted within EUROfusion's Power Plant Physics and Technology (PPPT) programme on a tokamak fusion power demonstration plant (DEMO) and recent results obtained for HELIAS in the neutronics area.

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