# TCP on the Stellarator-Heliotron Concept (SH TCP)

The strategic objective of the SH TCP is to improve the physics base of the Stellarator concept and to enhance the effectiveness and productivity of research by strengthening co-operation among member countries.
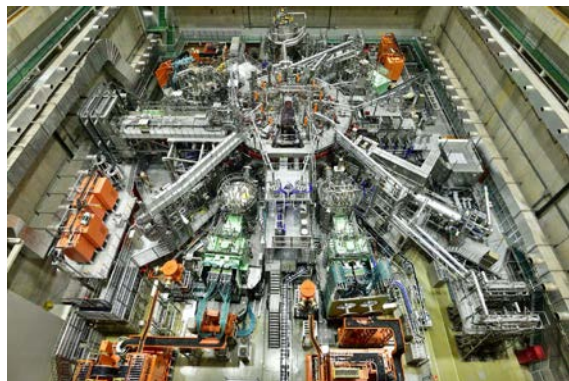
Main areas of work

- o Plasma heating and fuelling
- o Plasma confinement: influence of turbulent and neoclassical (collisional)transport, effects of isotope composition and impurities on plasma transport
- o Stability and equilibrium: high-beta operation, stability limits
- o Exhaust of heat and particles from the plasma and plasma wall interaction
- o Support and extension of databases

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Key activities and accomplishments (2017-2018)

- Two experimental campaigns with the Wendelstein 7-X stellarator (OP1.2a and OP1.2b)
- Successful deuterium operation of Large Helical Device (LHD) (2017, 2018)
- Co-operation with China on a quasi-axisymmetric stellarator
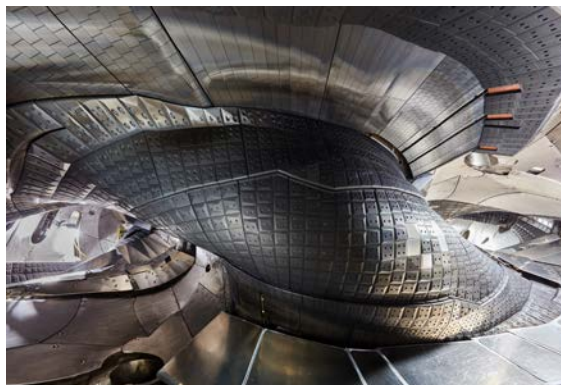
Plasma vessel of Wendelstein 7-X, IPP. (Photo courtesy of Bernhard Ludewig)

Priorities and projects (2019 – 2020)

- Completion of Wendelstein 7-X to full steady state capability
- Development of a steady state pellet injector for Wendelstein 7-X
- Full exploitation of the isotope-effect on heliotrons

Large Helical Device (LHD). (Photo courtesy of National Institute for Fusion Science)

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Multilateral collaborations

- SH TCP representatives in the topical groups of the ITER Tokamak Physics Activity (ITPA)

- Strong interest from Costa Rica to join the SH TCP

- Presentation of the Chinese stellarator activities to the 2019 Executive Committee meeting of the SH TCP

Membership

Australia	Japan	Russia	Ukraine	United States	European Commission

Why should your organisation become a member of the SH TCP?

Worldwide collaborative activities on the stellarator and heliotron research are combined under the umbrella of this programme, which promotes the exchange of information among the partners, the secondment of specialists to facilities and research groups, joint planning and co-ordination of experimental programmes in selected areas, joint experiments, workshops, seminars and symposia, joint theoretical, design and system studies, and the exchange of computer codes.

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