Status of the NCSX Project

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The National Compact Stellarator Experiment (NCSX) is being constructed at the Princeton Plasma Physics Laboratory (PPPL) in partnership with the Oak Ridge National Laboratory (ORNL). Its mission is to develop the physics understanding of the compact stellarator and evaluate its potential for future fusion energy systems. The NCSX has major radius 1.4 m, aspect ratio 4.4, 3 field periods, and a quasi-axisymmetric magnetic field. The device will provide the plasma configuration flexibility and the heating and diagnostic access needed to test physics predictions. The design features eighteen modular coils of three different shapes, and toroidal field, poloidal field, and trim coils for flexibility

Component production has advanced substantially since the first contracts were placed in 2004. Manufacture of the vacuum vessel was completed in 2006. Installation of heating / cooling tubes and magnetic diagnostics on the vessel surface is nearly complete. All eighteen modular coil winding forms have been delivered and twelve modular coils have been fabricated. A contract for the (planar) toroidal field coils was placed in 2006 and those coils are now in production. Preparations for assembly of modular coils into three-coil modules are under way. Plans for completing the construction, included an updated schedule, will be presented.