Design and Development of High-Temperature Superconducting Magnet System with Joint-Winding for the Helical Fusion Reactor

FIP/P8-21

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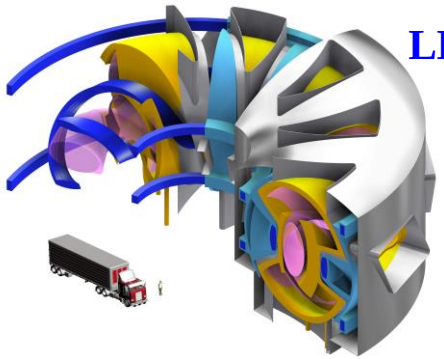
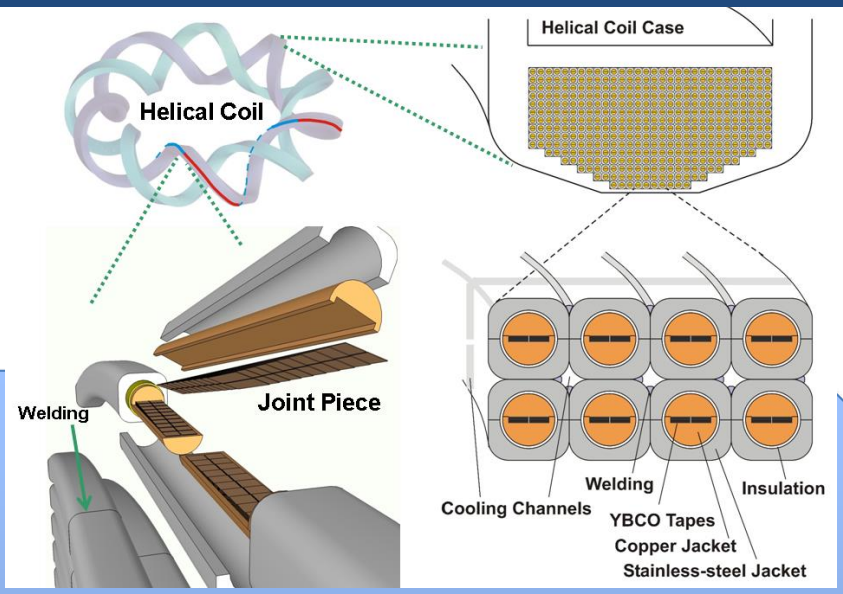


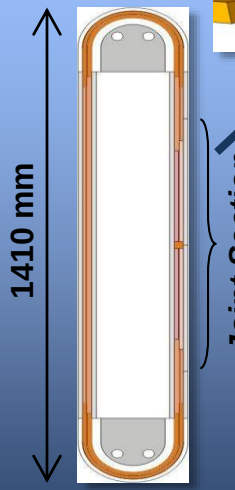
LHD-Type Helical Fusion Reactor "FFHR-d1"

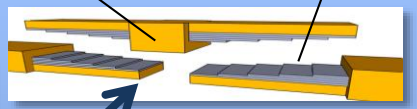
- steady-state
- long-life blanket
- long-life divertor

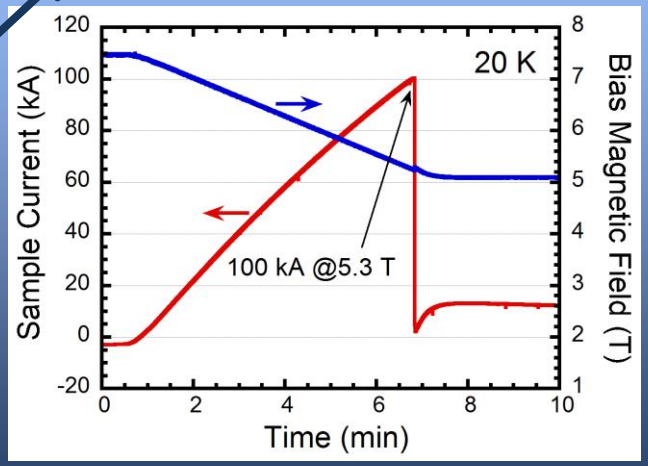
R = 15.6 m, B_c = 4.7 T, P_f = 3 GW

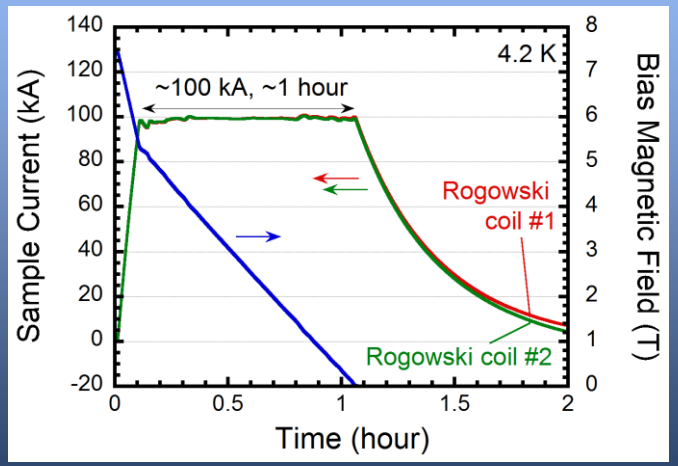


100-kA-class HTS conductor sample









- ✓ HTS prototype conductor sample achieved 100 kA for 1 hour
- ✓ Mechanical lap-joint confirms low joint resistance (2 nΩ) ➔ "Joint-winding" of helical coils technically feasible