

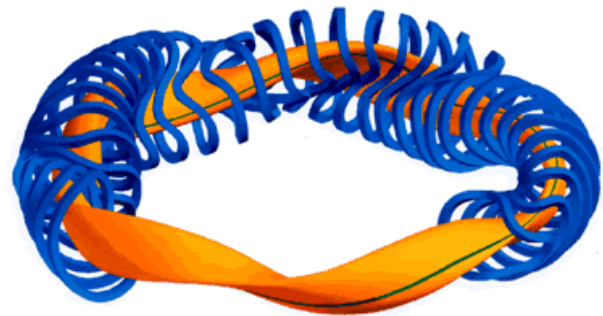


## Max-Planck-Society - Institute for Plasma physics

Nuclear Fusion Reactor Wendelstein 7

### **Exact Temperature Measurement in Cryo-Application**

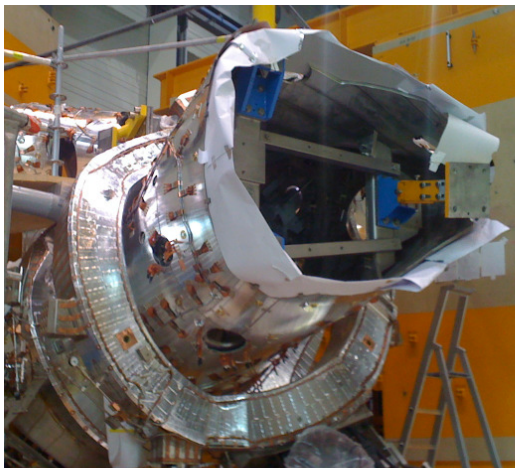
To avoid self heating of the cryotic sensor (e.g. Cernox or TVO), the excitation current is limited to  $6 \mu\text{A}$ . The resulting maximal measuring voltage (f.s.) is approx. 1,5 mV at room temperature. With e.bloxx A5-1CR it is possible to linearize the individual non-linearity over the whole span to reach a total accuracy of  $< 0,5 \%$ .



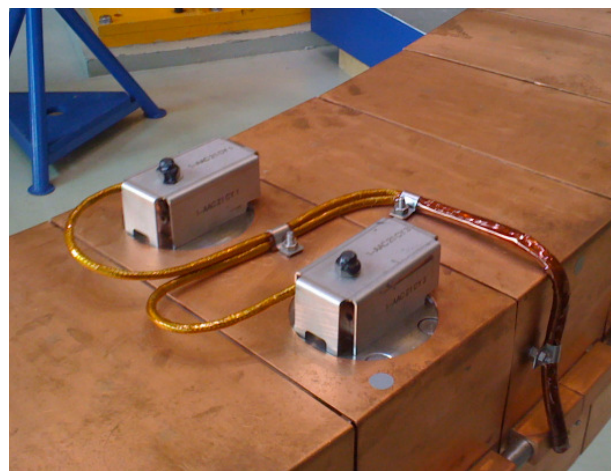
*Stellarator principle sketch*

### **Precise Strain Measurement in a 6 Tesla Field**

As well at the strain measurement a minimal power is important. For that reason a pulsed bridge excitation voltage is used. In a field of 6 Tesla this must be done very „intelligent“. No high gradients can be accepted. Further is required to measure between the strain samples the parasite thermo voltages at the junction points and compensate them.



*Segment during assembly*



*Strain gauge points on a planar coil*

