

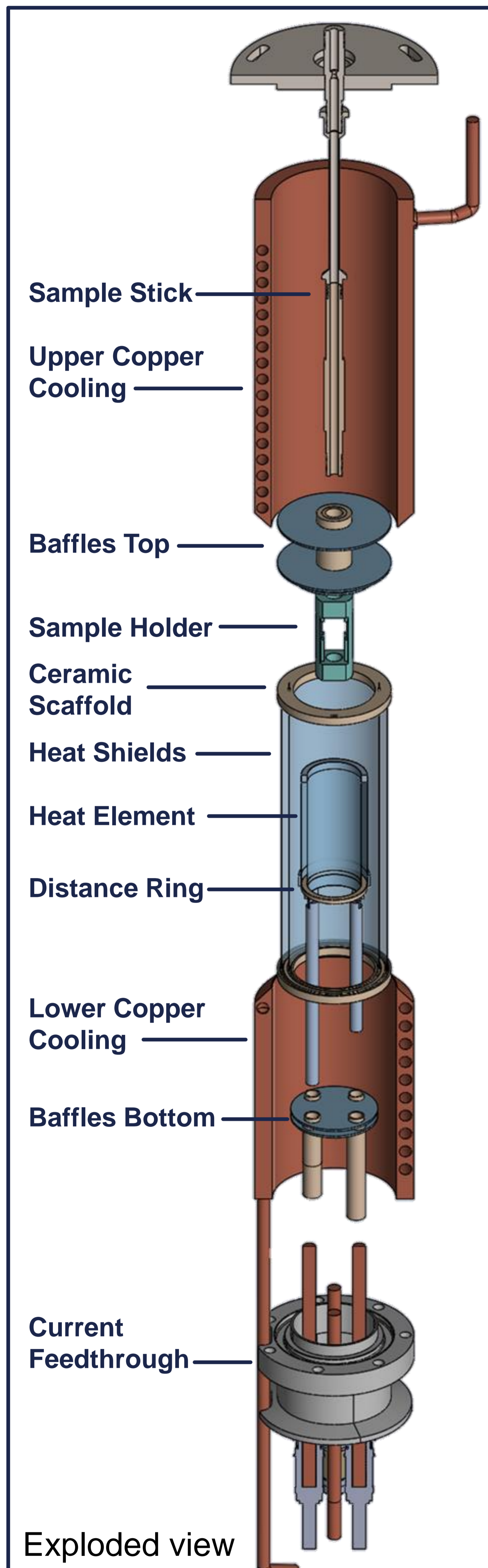
A compact high-temperature furnace for SANS magnets

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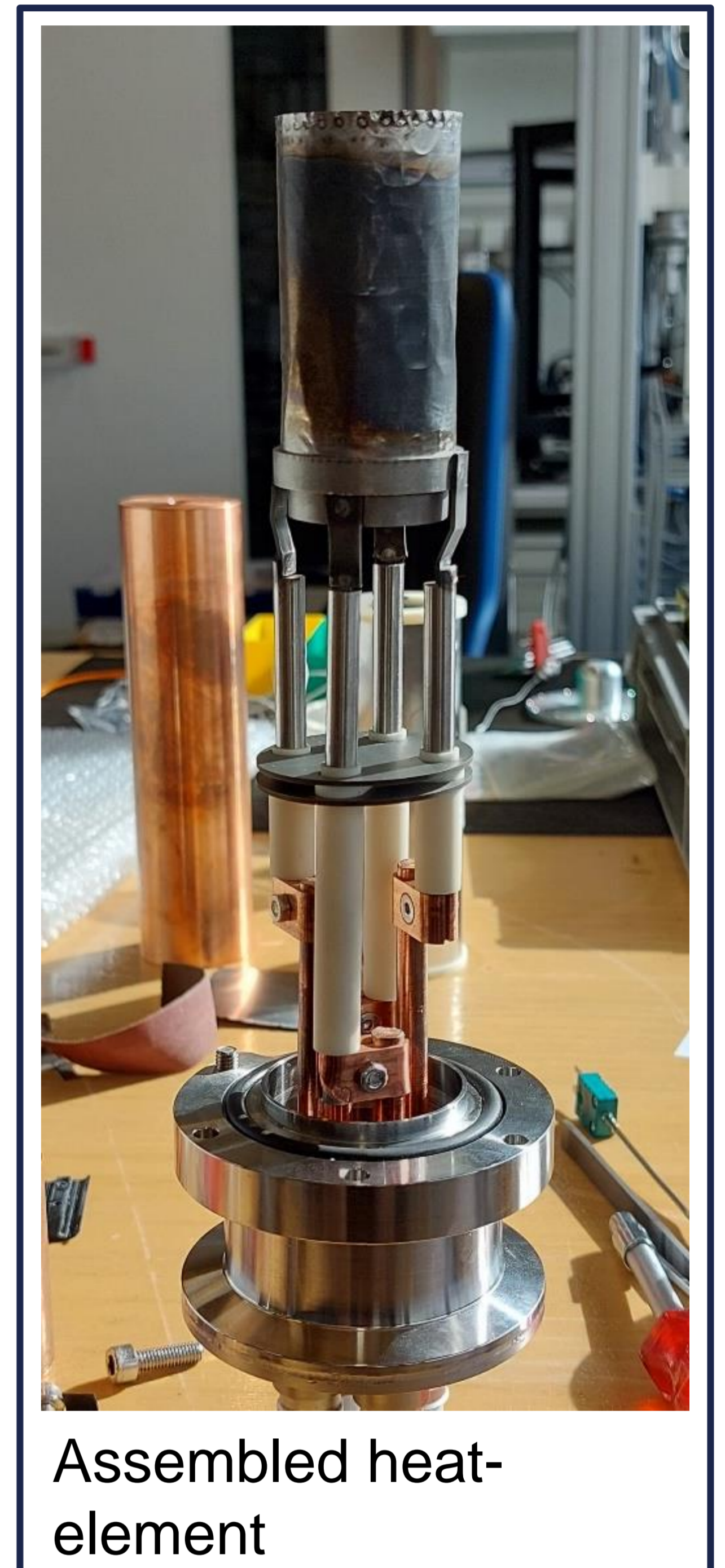
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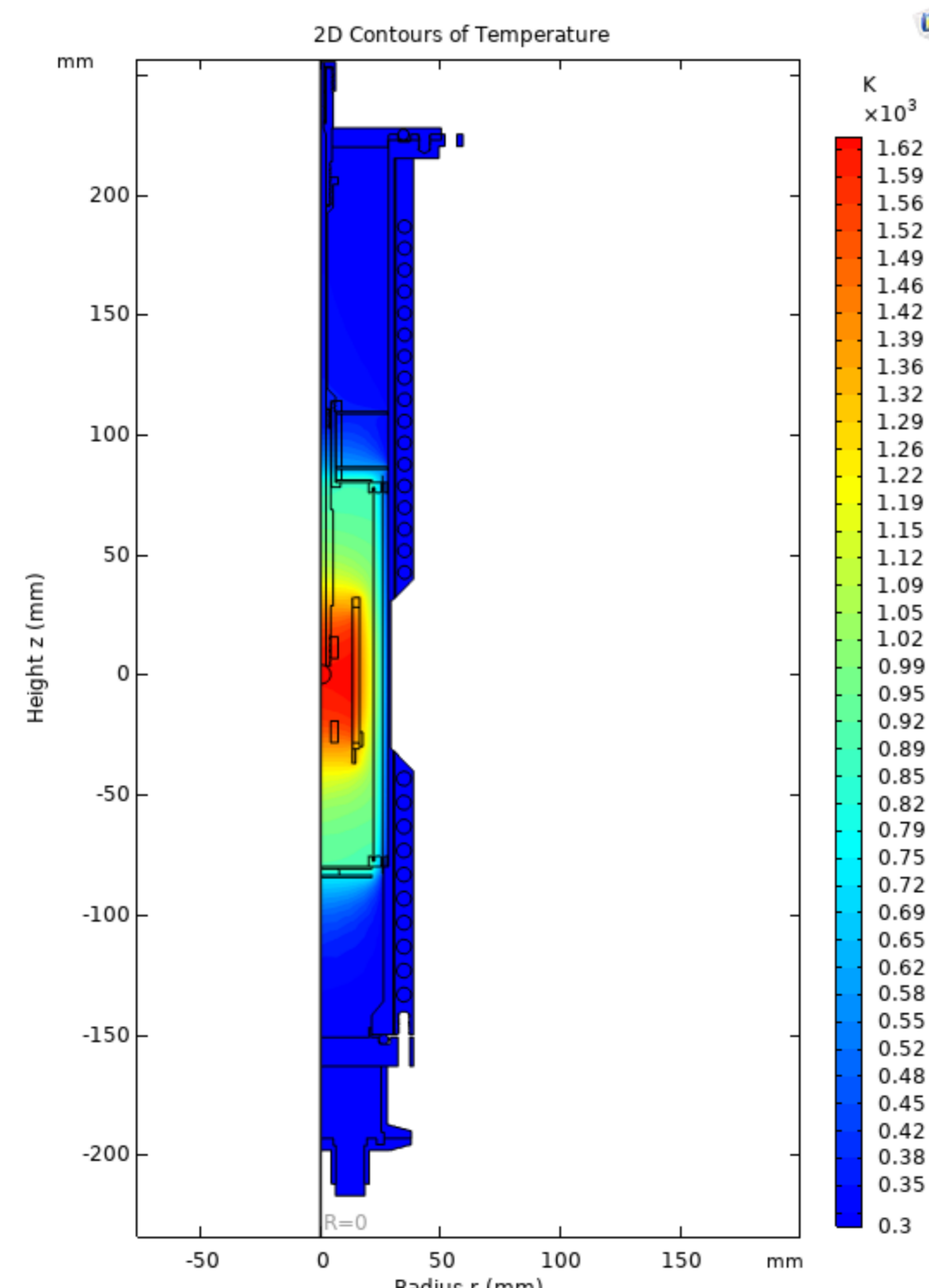
Furnace Composition



- **Type:** resistive heating of 50 μm Nb-foil
- **Dimensions:** max. \varnothing 76.9 mm \times 630 mm
- **Weight:** < 10 kg
- **Sample dimensions:** $\leq \varnothing$ 10 mm
- **Peripherals:** vacuum-pump, water-cycle, 4-pin current feedthrough, thermo-element
- **Materials**
 - Dewar: *Aluminum*
 - Water-Cooling: *3D-printed Copper*
 - Heat-Element/Shielding: *Niobium*
 - Scaffold: *Ceramic (Al_2O_3)*
 - Remaining: *Stainless Steel*



Achieved Values



-	Tests	Simulation
Max. temperature	1000 °C	1354 °C
Applied current	115.3 A	150 A
Min. pressure	1.19e-4 mbar	arb.

Scientific Applications

- Used inside available 2.5 T HTS-magnet
- Fe-/Co-/Ni-based ferromagnets:
 - > Separate $d\sigma_M/d\Omega$ and $d\sigma_N/d\Omega$
- Track nucleation of magnetic nanoparticles
- Stand-alone application for high-Q measurements

