

# 4-Circle Helium Flow Cryostat

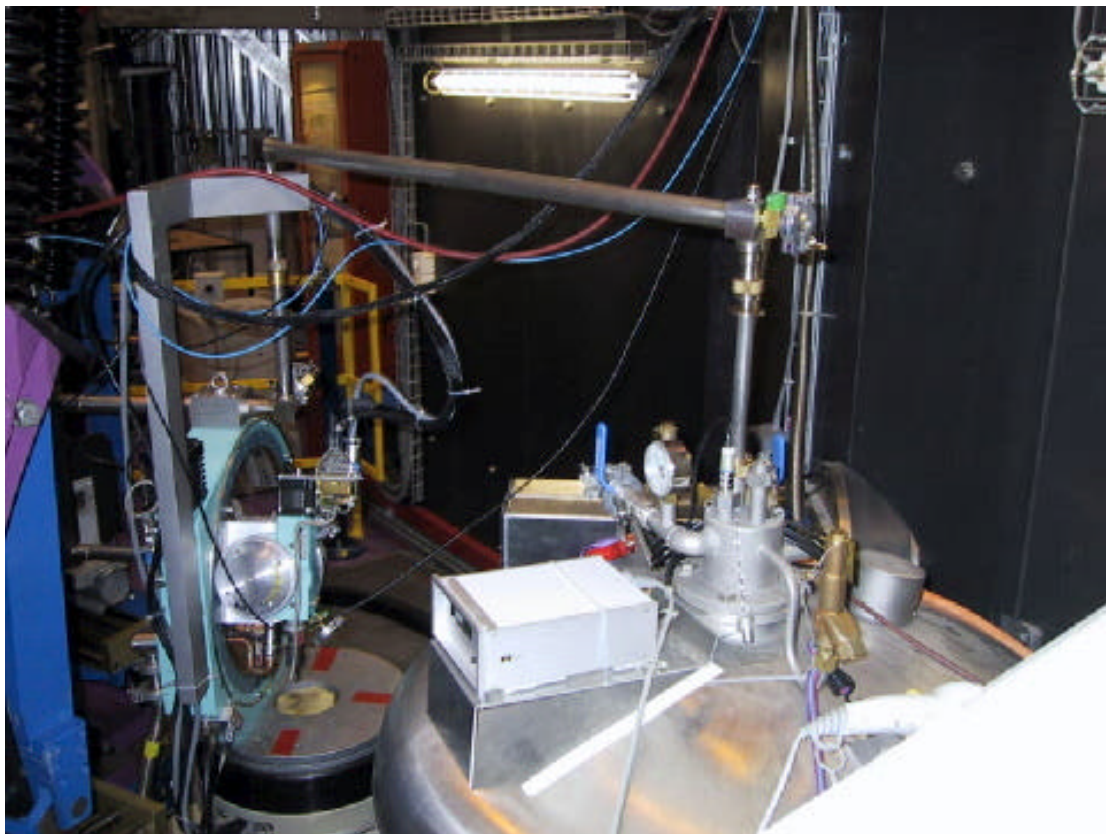
1<sup>st</sup> version, use with care  
feedback comments/errors

## Operation Manual

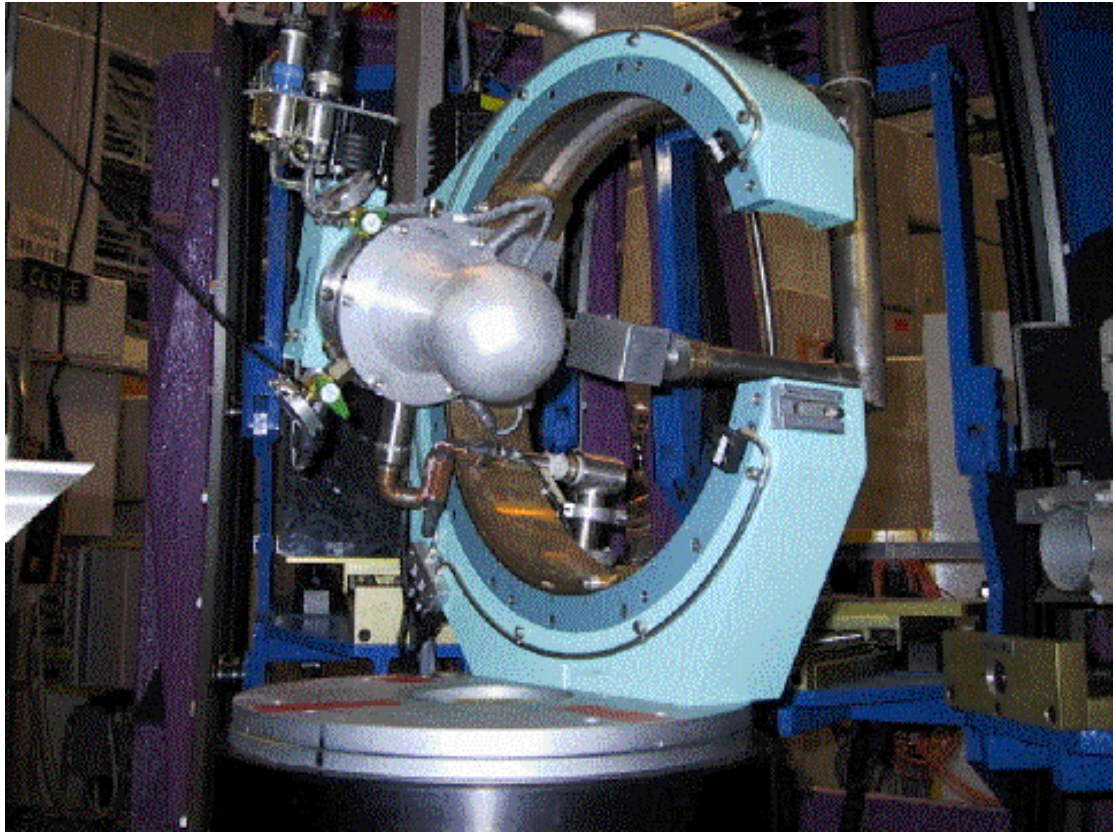
### 1. Sample Mounting

- Sample is mounted on an M3 screw. A nut is used to lock it (has to be tight, but screwed with care, as aluminum is soft)
- The sample is under 0.7 bar helium, but normally the area is purged using vacuum
- Sample has to be centered in height (by screw) and translation (by bending the aluminum screw gently)
- The inner heat shielding with diameter 5cm is indium sealed and has to be evacuated first and afterwards filled with Helium (0.7bar) as exchange gas
- The middle heat shield just has to be in place and must not be sealed.
- The outer heat shield is sealed with an O-ring (handle with care, replace if damaged)

## 2. Setup



Distance Dewar - Filling-tube of 4-circle: 105cm



**Cold Valve:**

Blue tube: Air pressure

Red tube: Helium recovery

Copper block: Heating due to ice from humidity in the hall





## 4. Refilling

*Refilling is done by transferring helium from a second dewar to the huge 250l dewar permanently connected to the cradle.*

- Stop pumping
- Connect dewar gas volume to helium recovery system (connect plastic tube, open valve)
- Refill from second bottle (use a long transfer line, tube must reach bottom of 250-Liter bottle to avoid helium turbulences)
- Wait approximately 1 hour, permanently check liquid helium level
- Close dewar gas-volume
- Connect overpressure valve exit to helium recovery system
- Restart helium pump
- Wait 20 Minutes
- Put cold valve manually to 0 (completely open)
- Put flow to 100.0
- Wait 10 Minutes
- Put cold wave to automatic, set point 5.0
- Put flow back to 70.0
- Set temperature from SICS to new value (if necessary)
- Wait 20 Minutes

Jürg Schefer, O. Zaharko Nov.2000