



# Dilution refrigerator

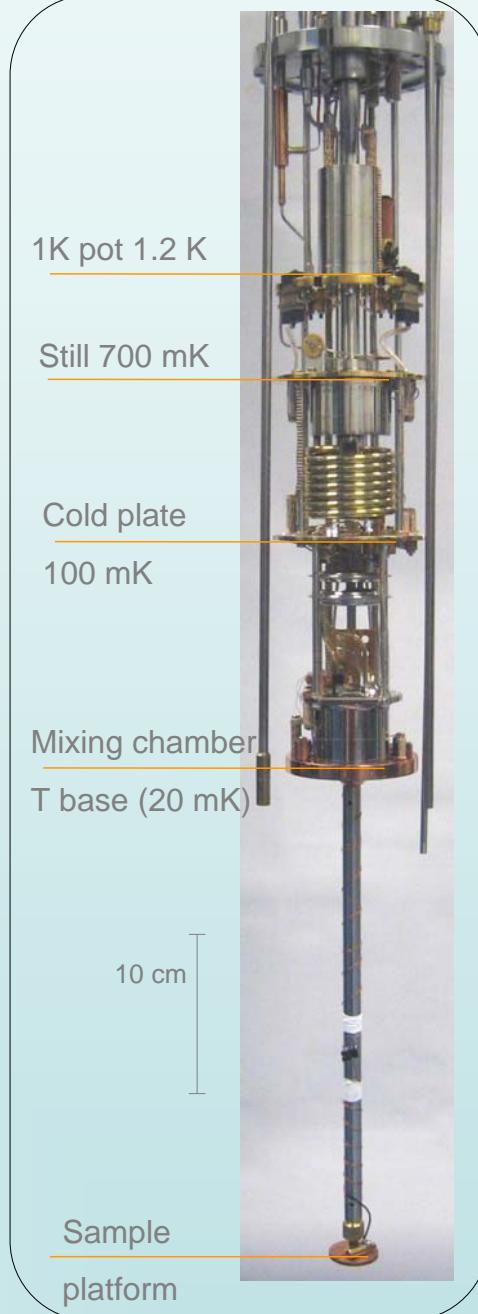
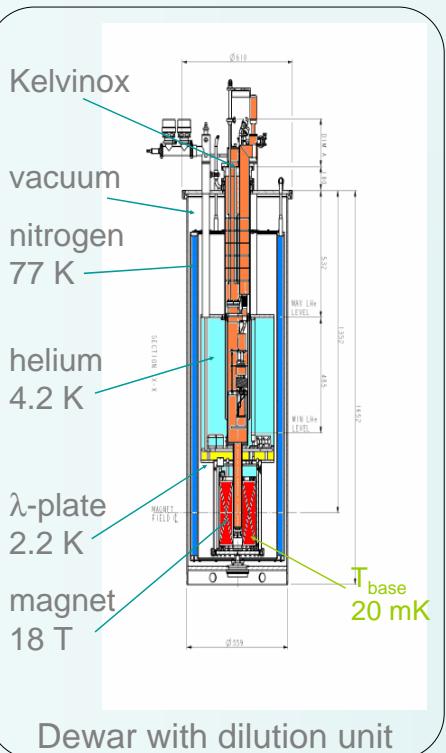
Oxford Instruments Kelvinox MX100



Base temperature 20 mK

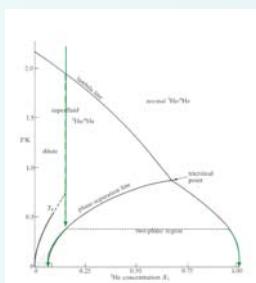
Cooling power 100  $\mu\text{W}$  at 100 mK

Magnetic field 18 T

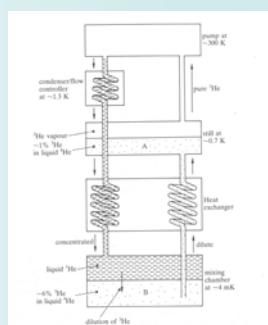


## Dilution refrigeration principle

instead of evaporation of a liquid, dilution of  $^3\text{He}$  in a  $^3\text{He}/^4\text{He}$  mixture is used



$^3\text{He}/^4\text{He}$  mixture phase separates below 0.9 K



Schematic overview dilution refrigerator

## Experiments:

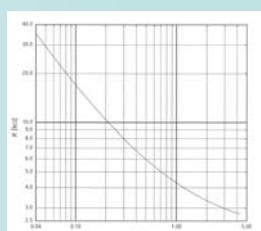
- magnetoresistance
- thermal expansion and magnetostriction
- specific heat

Low eddy current sample holder

Sample platform with heater and thermometer



## Resistance thermometry



Calibration curve of  $\text{RuO}_2$  thermometer