

Status of the University of Michigan Polarized Proton Target*

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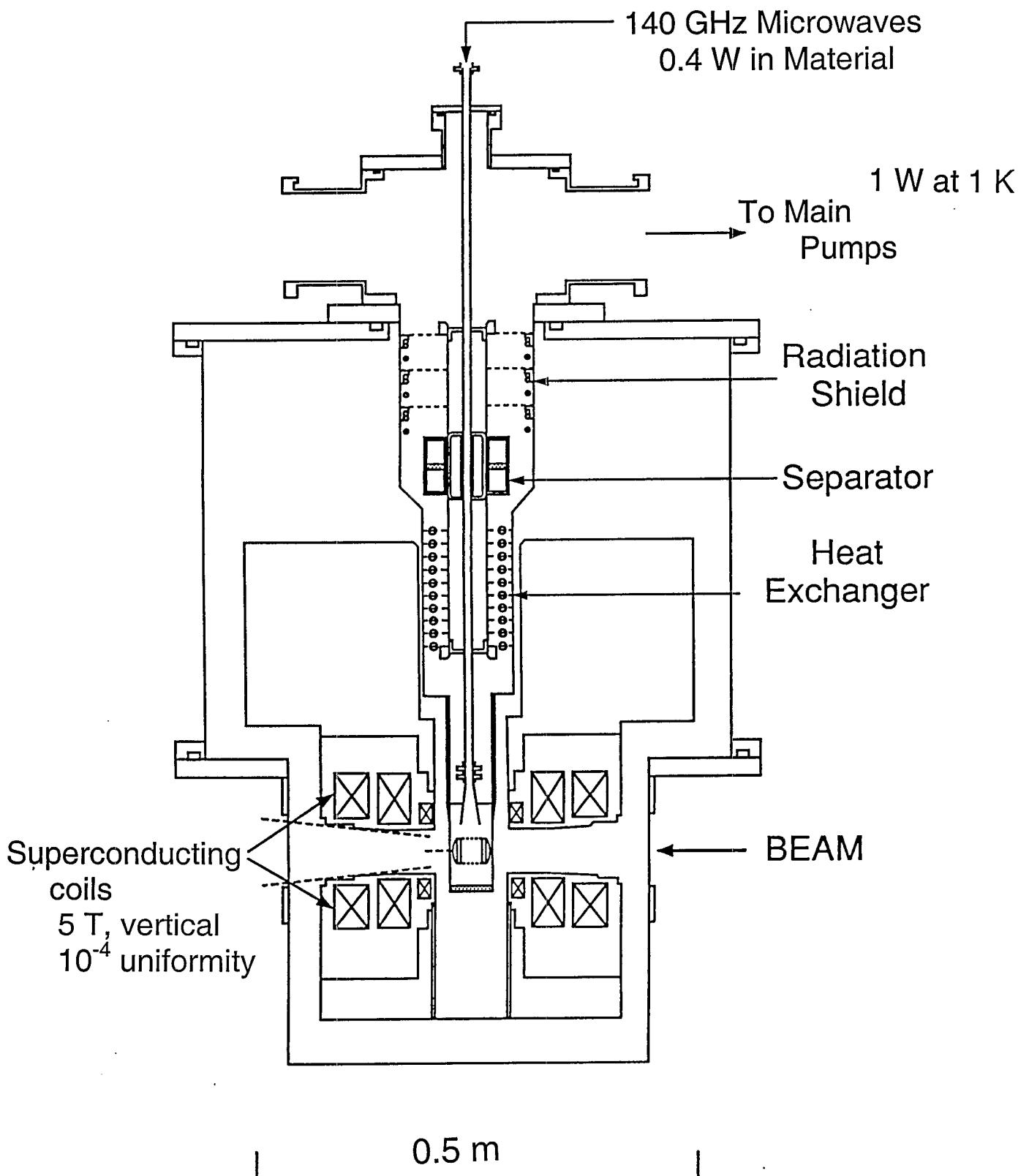
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Major Equipment I

changes, improvements marked with *

Magnet system

Oxford Instruments Cryostat

*Power supply system – American Magnetics

Type 420 controller, Type 12100 power supply,
Type 601 energy absorber

Microwave system

Varian EIO, 22 W maximum

*Varian power supply

NMR system

*LabView + National Instruments

*1-GHz computer

Boonton signal generator

Liverpool processing boxes

Home-built offset/amplifier module

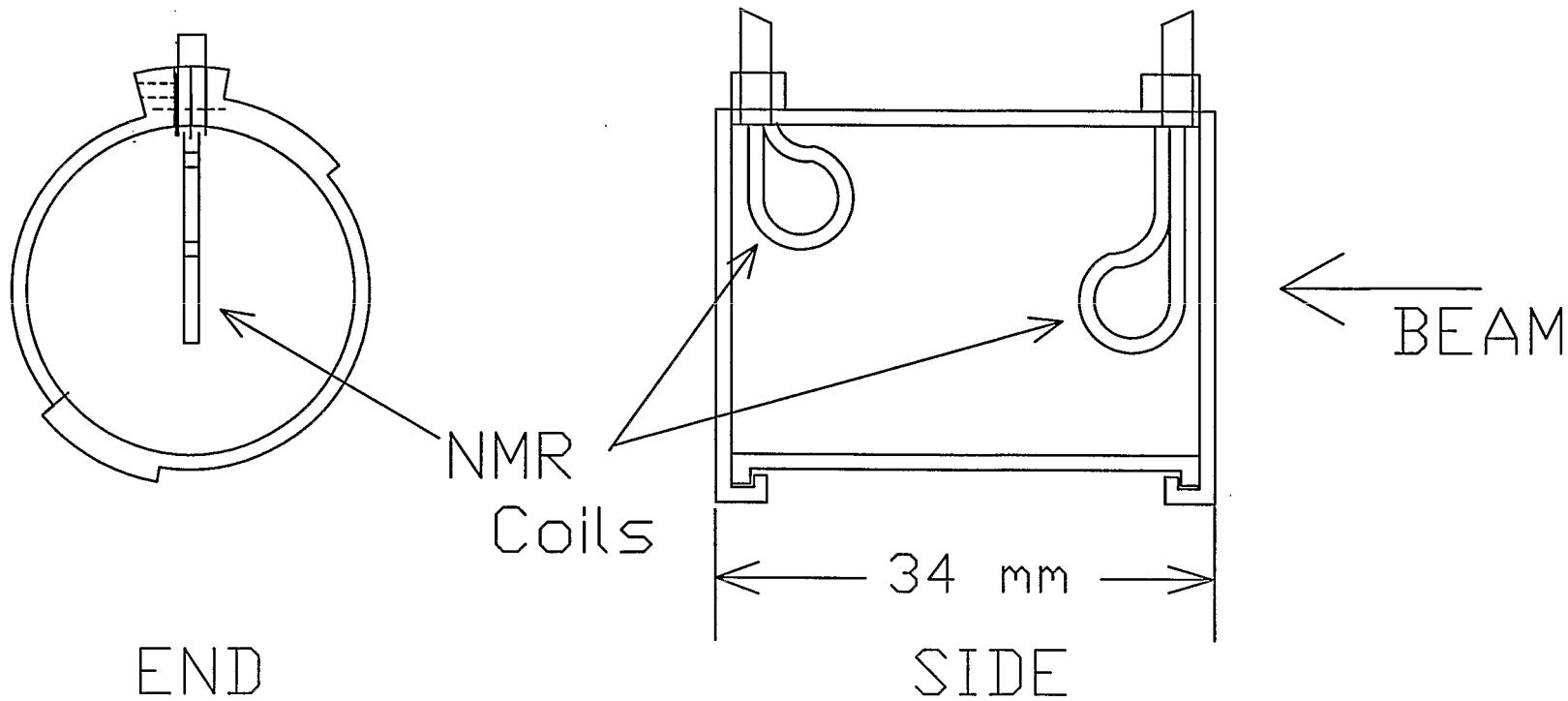
*2 coils, offset, each 8 mm diameter

Refrigerator

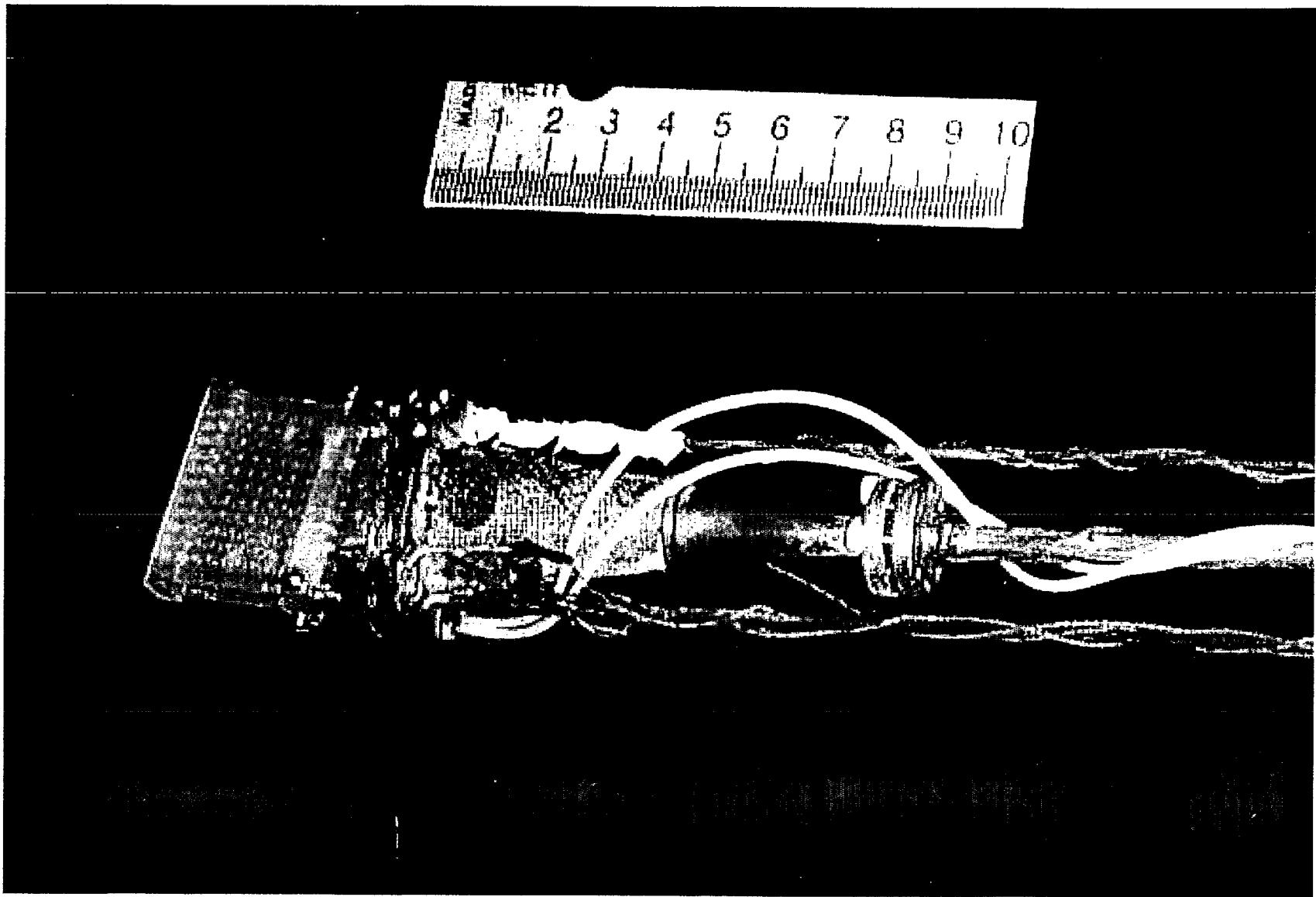
*Kel-F material holder, Al foil end caps

*Re-wire refrigerator insert

*RuO temperature sensor



Kel-F material holder
Easily, quickly replaceable
Al foil beam windows



Major Equipment II

changes, improvements marked with *

Refrigerator pumps

*Roots pumps

2 in parallel, Type 2DVN-1500, 5400 m³/hr each
Servo S, Penza, Ukraine

*Backing pumps

3 in parallel, Type NVR-250D, 227 m³/hr each
Vacuumash, Kazan, Russia

*Stand for pumps constructed

*Remote-controlled valves for pumps

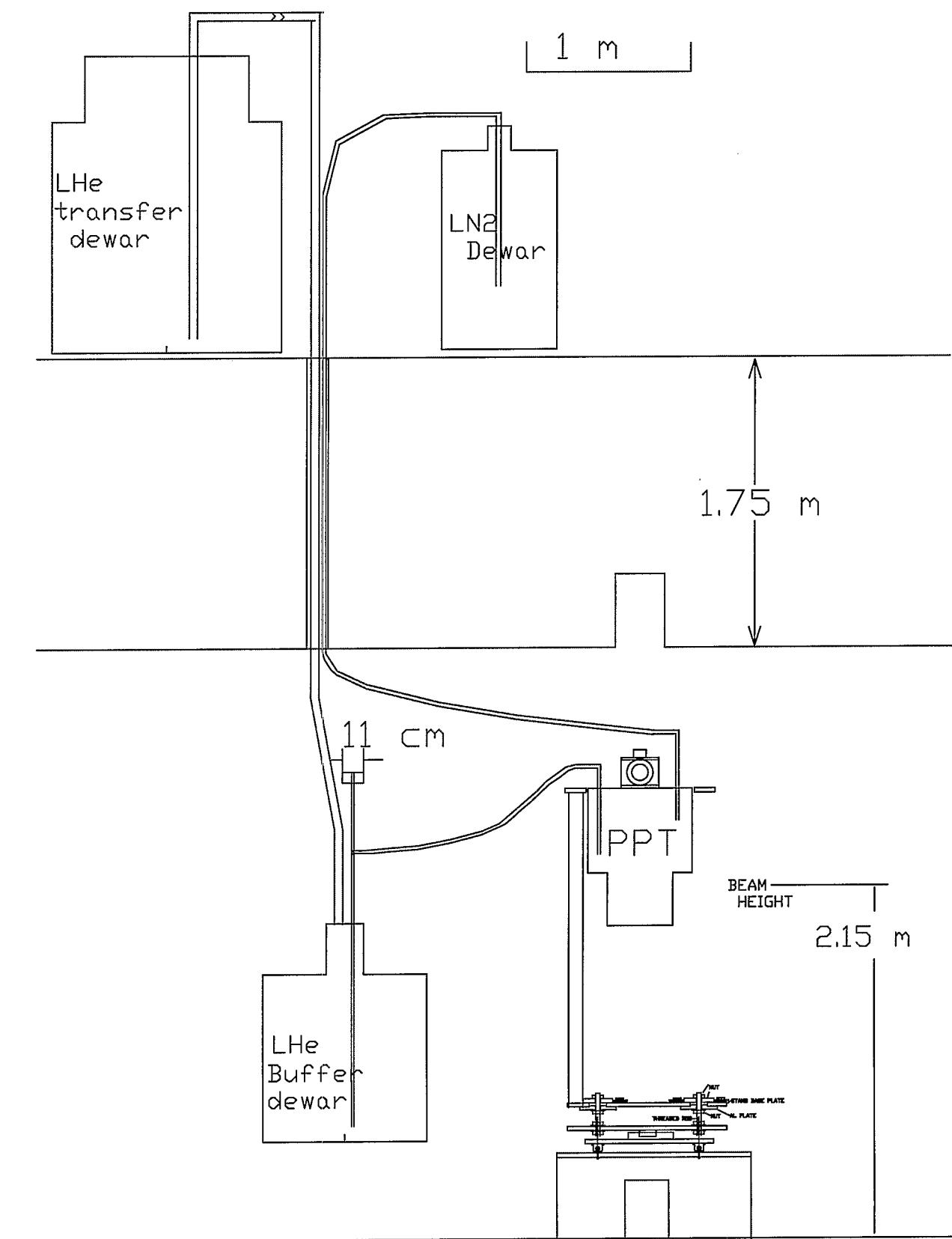
Dewars

*630 l helium dewar
300 l helium dewar

*Transfer lines designed

*Moveable PPT stand designed; rails & bearings received

SCHEMATIC



SUMMARY

1990

AGS at BNL

1 spill / 2.4 s @ 2×10^{11} protons / spill
 $\Rightarrow \sim 10^{11}$ protons/s average

(limited by magnet quenches)

NH₃ target material

Target thickness $\cong 2 \times 10^{23}$ protons / cm²

Luminosity $\cong 2 \times 10^{34}$ /cm² s

Average polarization ~85% over 3 months

2002 – Preparing for **SPIN@U-70**

U-70 at IHEP, Protvino, Russia

Rastered beam

1.5 s spill/ 9 s @ 10^{12} protons / spill

$\Rightarrow \sim 10^{11}$ protons/s average