The University of Manchester

SCHOOL OF PHYSICS AND ASTRONOMY

WELCOME

IOP History of Physics Group and Low Temperature Physics Group

Professor Stephen Watts

16th September 2015

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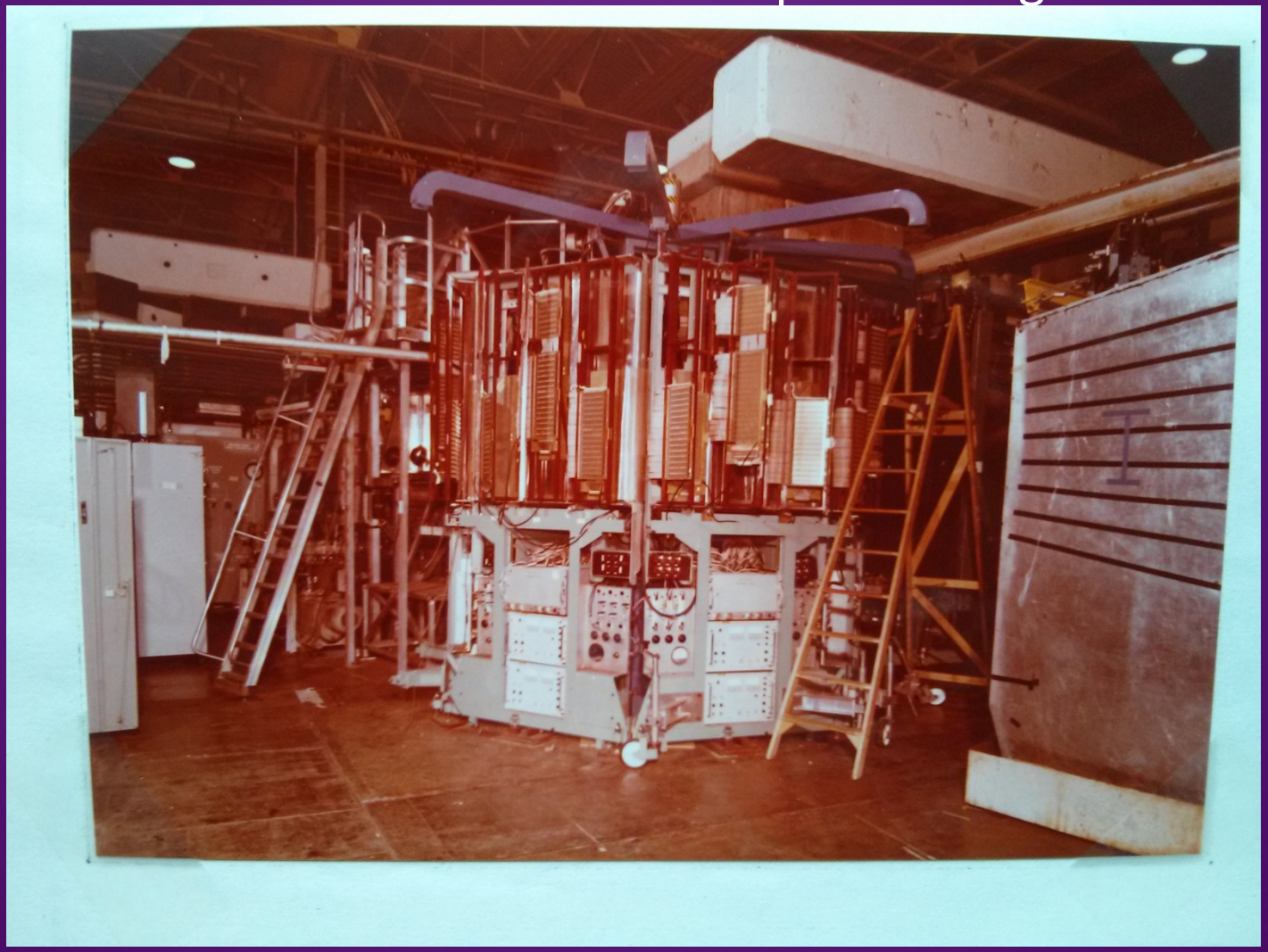
K20 Experiment – Rutherford Appleton Laboratory ~ 1976

Polarization in $K^+ n \Rightarrow K^0 p$ scattering at around 1 GeV



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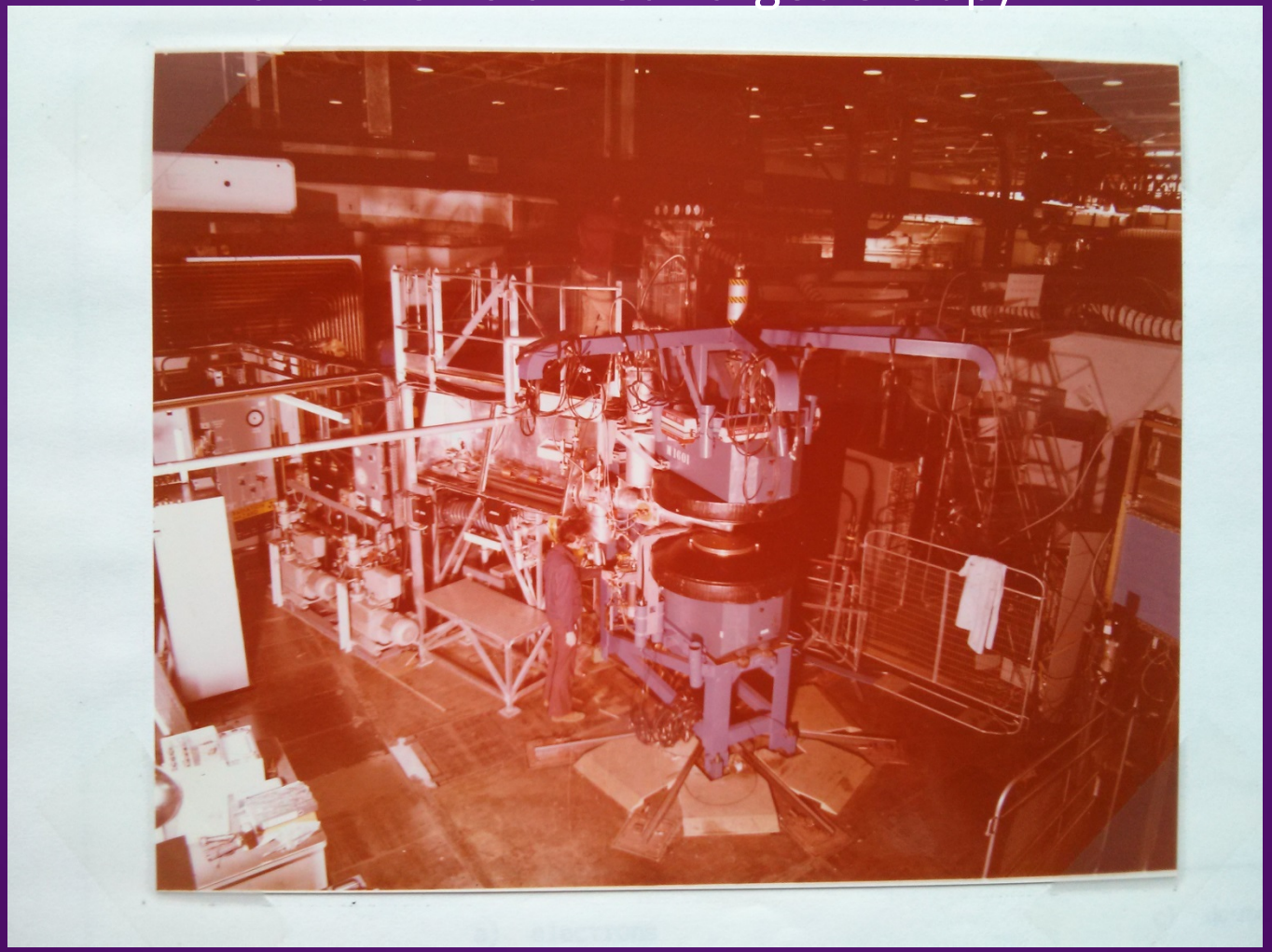
K20 Experiment – RAL ~ 1975

Ten Years after the first dilution fridge

Polarized Deuteron Target

(Thank you - S.F. Cox and A.S.L. Parsons and the Polarized Target Group)



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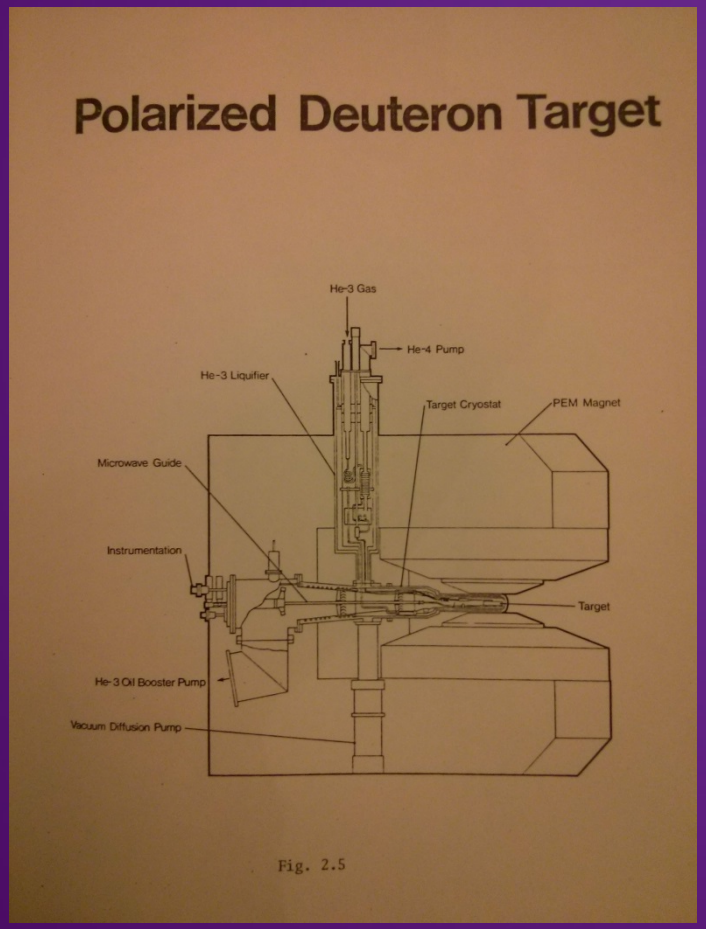

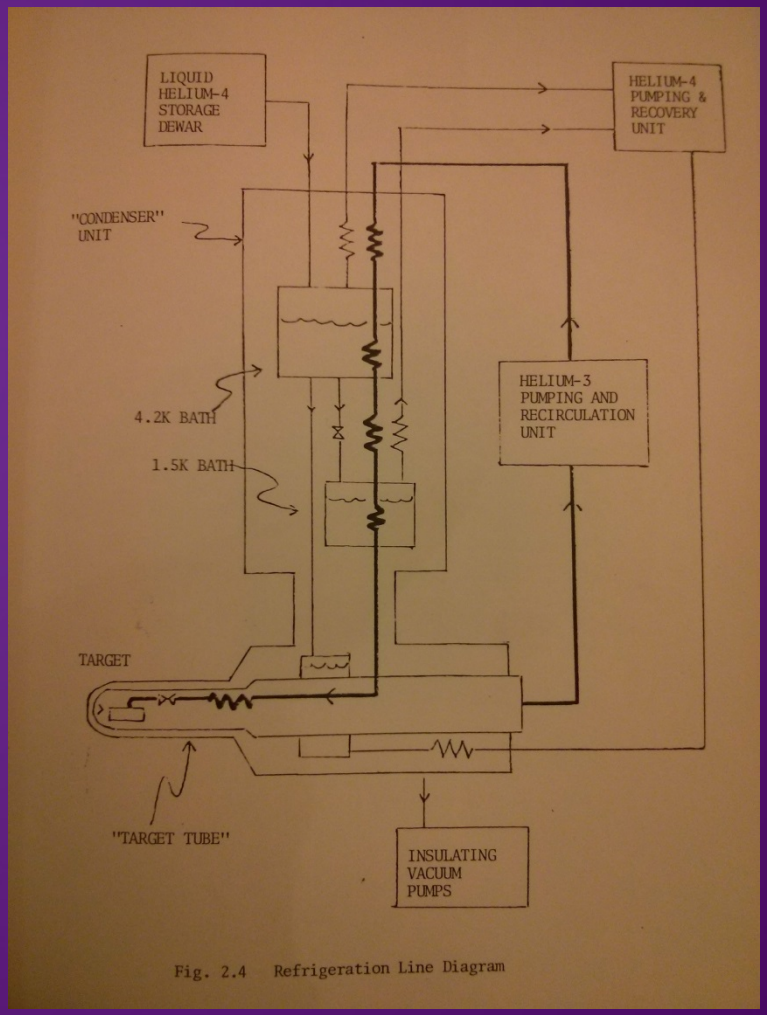

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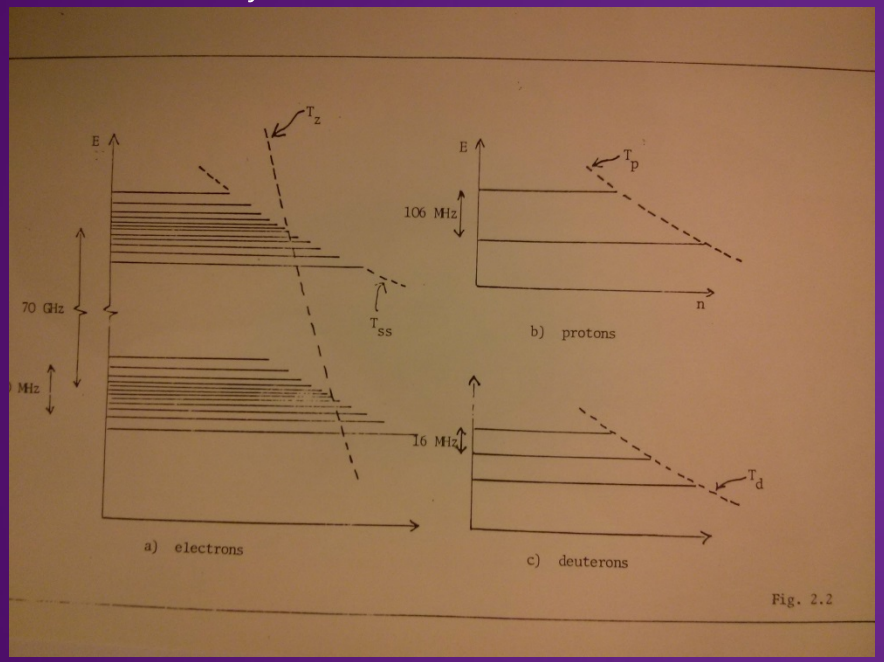
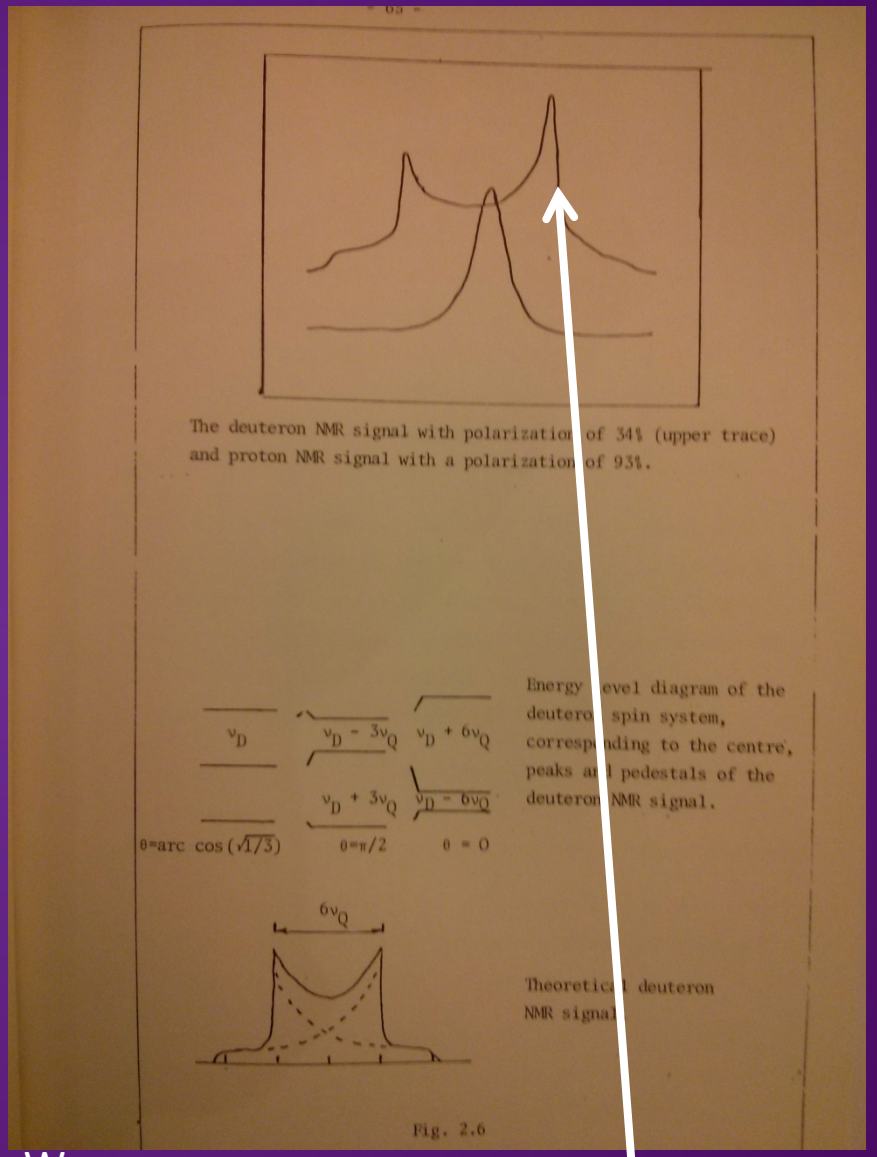


Fig. 2.2

2.5 Tesla 0.4 Kelvin
Electron polarization 99.7%
Proton polarisation 0.5%

"Dynamic Polarization" 70 GHz microwave 75 mW
Protons 93% Deuterons 36% (Neutrons 0.91 x 36 = 33%)
Spin temperature 1.5 milliKelvin
Leave the explanation to Prof. Niinikoski…….


The deuteron NMR signal with polarization of 34% (upper trace) and proton NMR signal with a polarization of 93%.

Energy level diagram of the deuteron spin system, corresponding to the centre, peaks and pedestals of the deuteron NMR signal.

Theoretical deuteron NMR signal

Fig. 2.6

The measurement that made me believe in Quantum Mechanics

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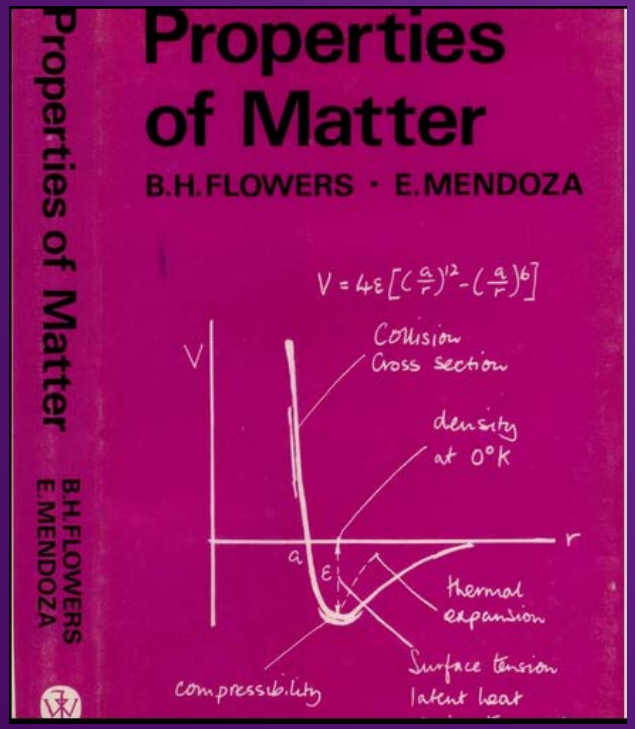
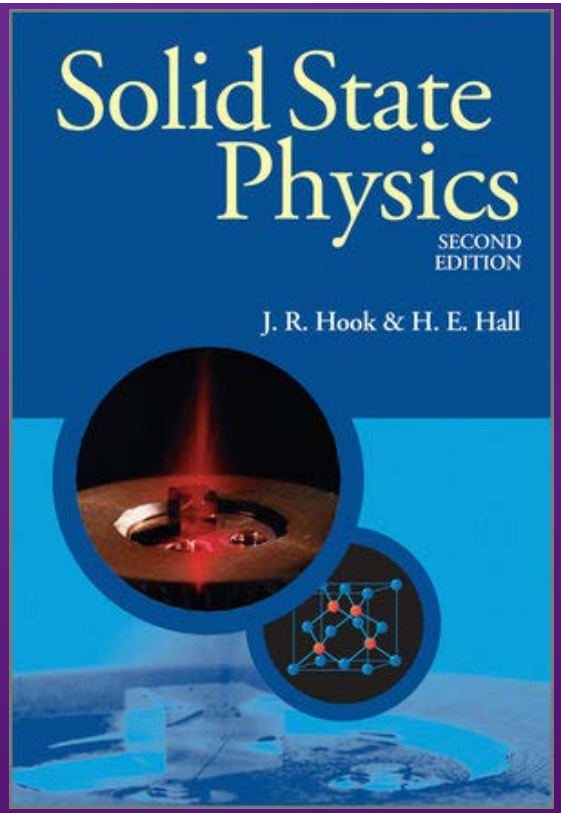
The Manchester Physics Series

The Manchester Physics Series is a set of textbooks at first degree level, published by Wiley and available through all good book stores



First Manchester Book as undergraduate in London



First course as lecturer

Thank You
Henry Hall

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Thank you for travelling to Manchester for this landmark meeting

Thank you to the Organising Committee

ENJOY THE MEETING !