



17TH ADVANCED BEAM DYNAMICS WORKSHOP ON

FUTURE LIGHT SOURCES

Novel Superconductive In-Vacuum Mini-undulator

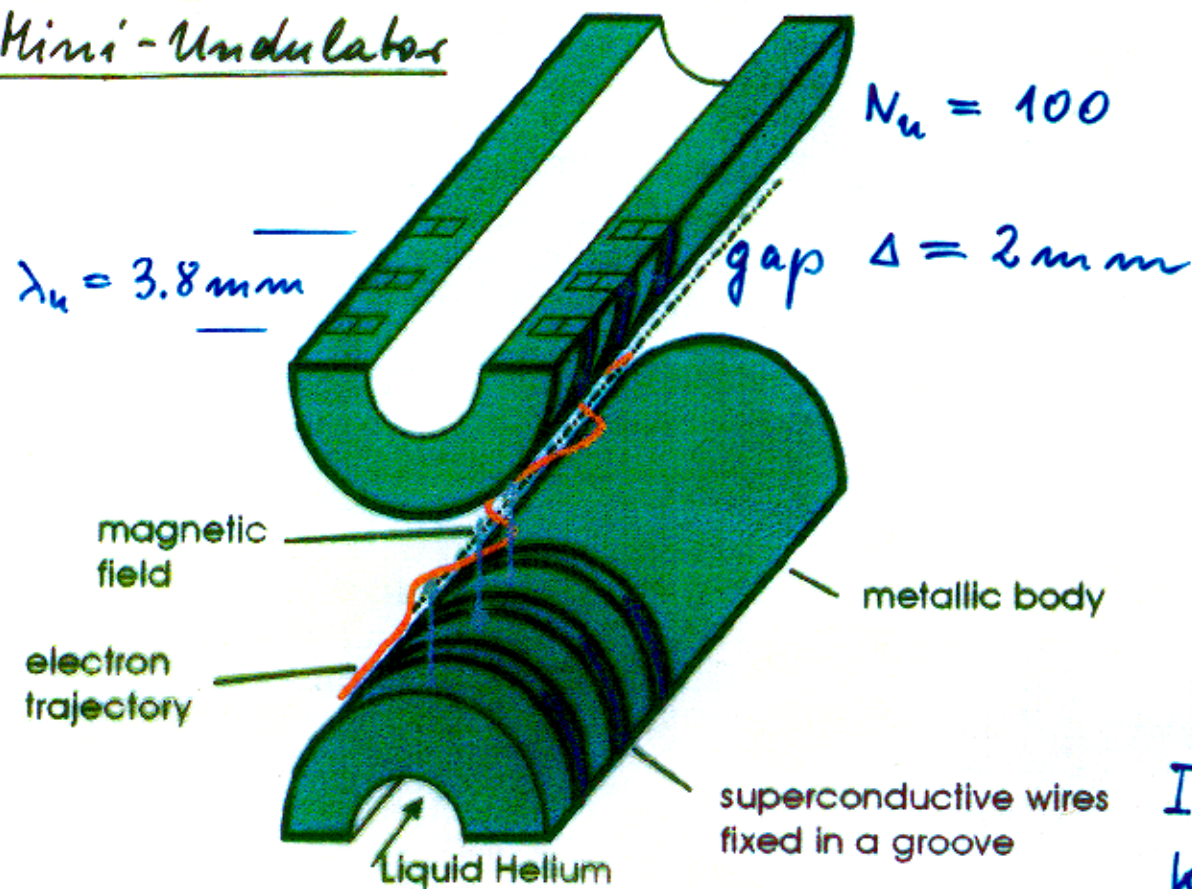
H. Backe, Institut für Kernphysik, Universität Mainz

APRIL 6-9, 1999

ARGONNE NATIONAL LABORATORY, ARGONNE, IL U.S.A.

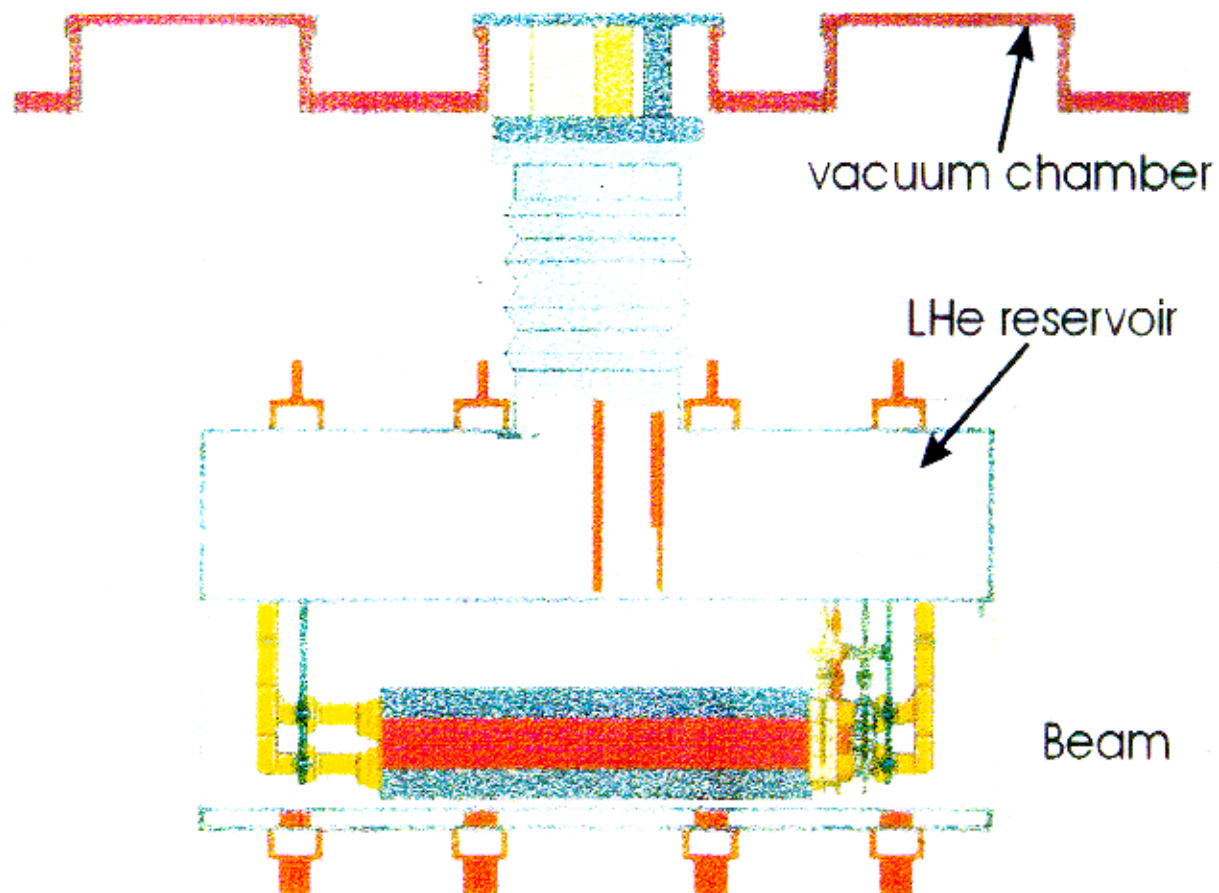
Novel Superconductive
in-vacuum Mini-Undulator

Layout of the undulator



$$I_{\text{max}} = 1400 \text{ A}$$
$$K_{\text{max}} = 0.2$$

The cryostat for the undulator

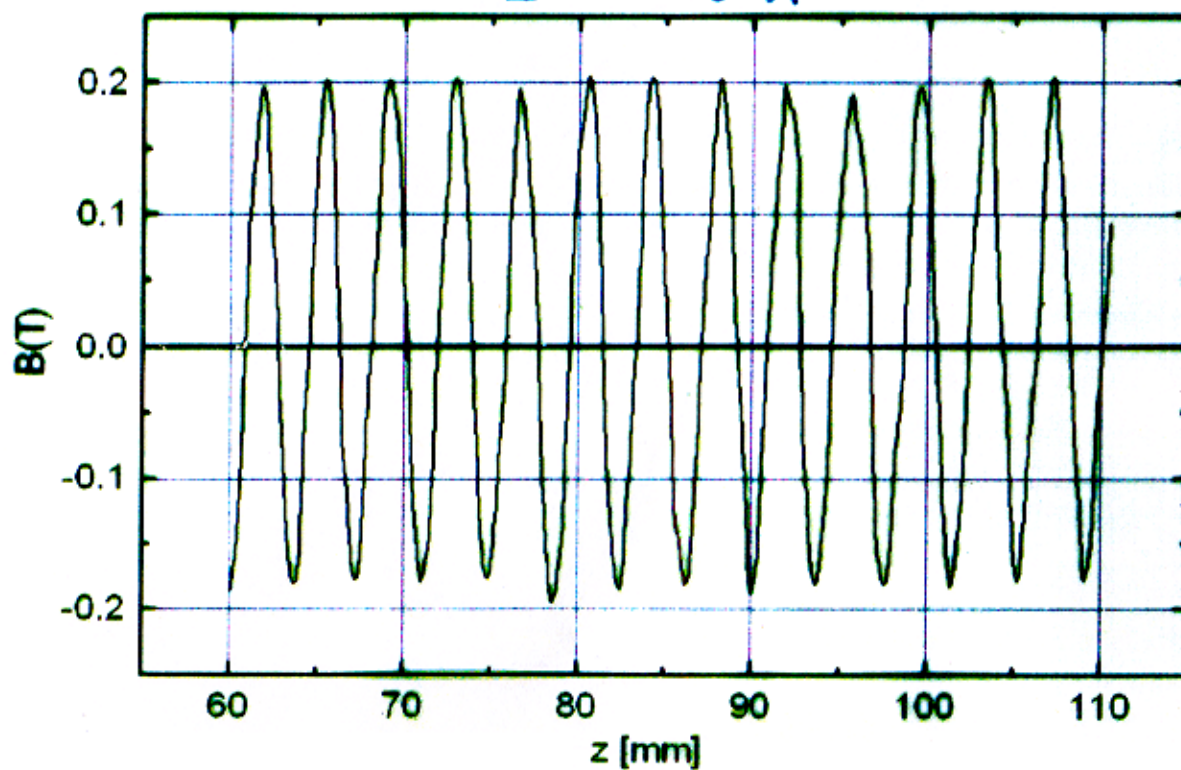


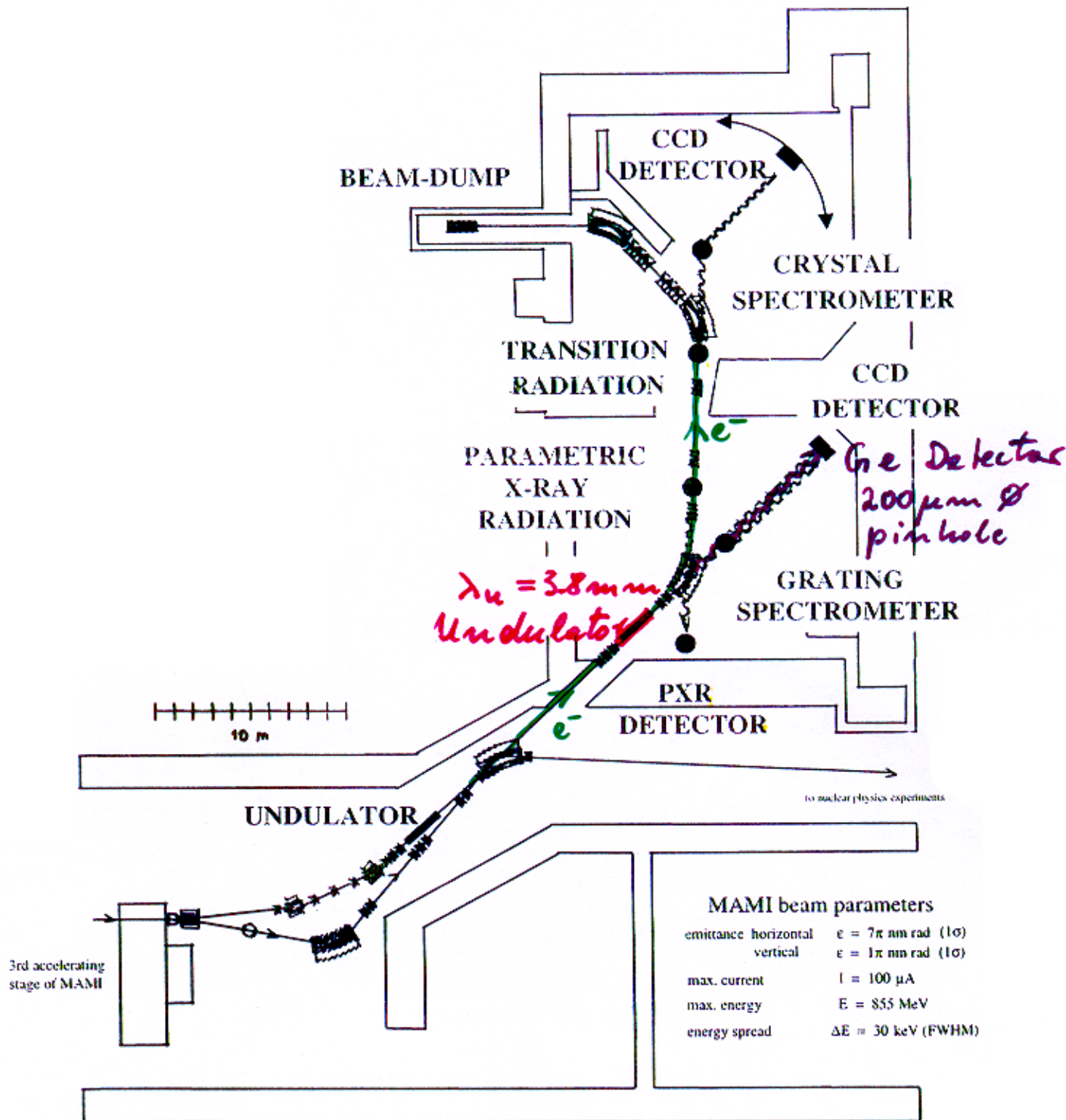
Measured field of one undulator coil

100 x 100 μm^2 Hall probe

0.5 mm distance

I = 600 A



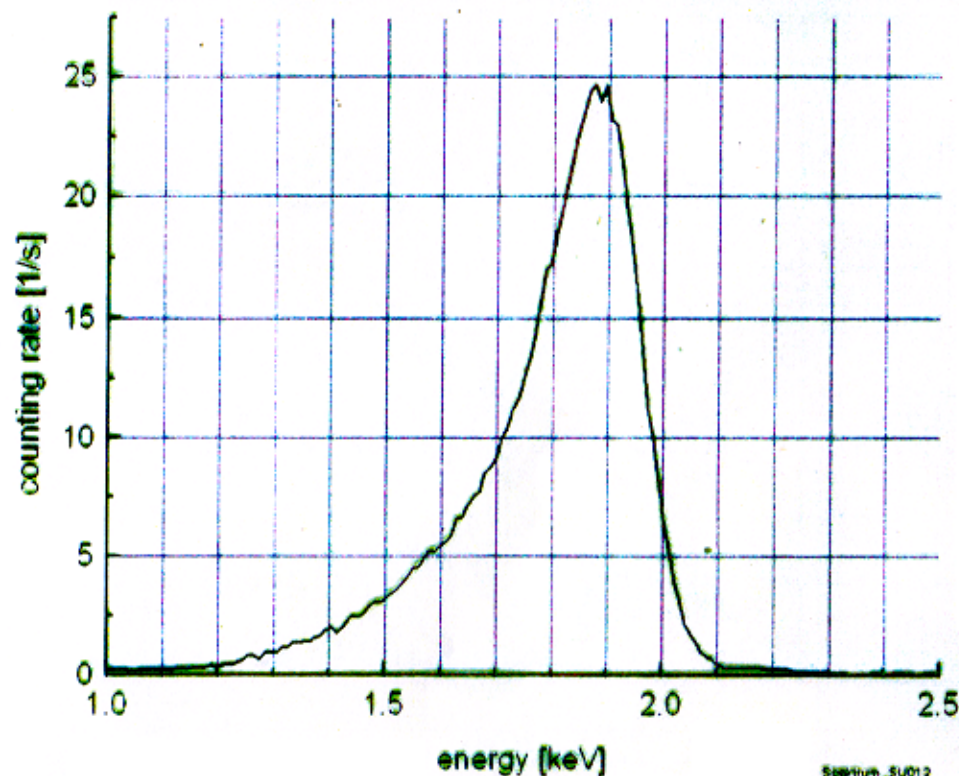


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The measured spectrum



Spectrum for $B=0.15\text{T}$, $200\mu\text{m}$ pinhole, 133pA beam current



$$I = 400 \text{ A}$$

$$k = 0.053$$

Detector Resolution
150 eV FWHM

Vertical spatially resolved X-ray undulator spectrum

