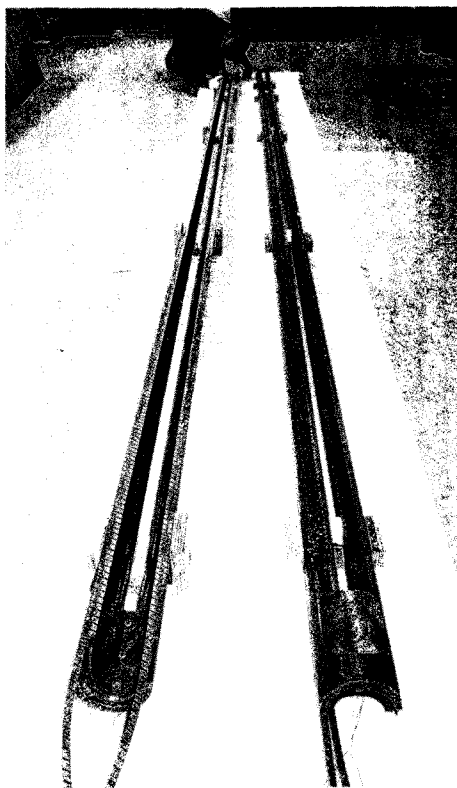


Around the Laboratories

The two halves of the first complete six metre-long coil for a superconducting magnet for the proposed HERA ring.

(Photo DESY)



DESY HERA clearer

The Federal German Ministry of Research and Technology has taken a fundamental policy decision regarding the future of the HERA electron-proton storage ring proposed for DESY. For the 1984 budget plans and the finance programme for 1985–7, it has been decided to make adequate arrangements to allow for HERA construction.

This decision has been taken in particular to permit DESY to continue negotiations with foreign countries on their participation in HERA, as this is seen as an important aspect of the project. Most of these contributions are envisaged as materials and components for the storage ring and for experiments.

The Government of the City of

Hamburg welcomed the Federal Government's decisions. The DESY budget is financed normally by the Federal Government and the City of Hamburg in the ratio 9 to 1. For HERA, some special arrangements might be required. The basic assumption is that HERA will cost 660 million deutschmarks at January 1981 prices. Assuming an annual inflation rate of five per cent, this will grow to 960 million over the seven years of HERA construction. The City of Hamburg had decided much earlier to underwrite 10 per cent of the initially estimated cost, but this could be increased.

While the City of Hamburg has already included these expenses in provisional budgeting, the Federal Government will include the required initial HERA finance in 1984 if two conditions are satisfied — foreign participation has to be deemed sufficient, and the agreement with the City of Hamburg on the additional costs has to be definitely settled. The chances of fulfilling these requirements seem quite good. In the meantime all preparation work already authorized is being carried out according to schedule, particularly the development of the superconducting magnets for the proton ring.

At DESY, the good news from the Federal Government was accompanied by several other happy HERA events. The first complete six metre-long coil for a HERA bending magnet made of superconducting wire was produced by a winding machine and assembling device built and installed at DESY. There was also a meeting of working groups preparing the Amsterdam 'Workshop on Experimentation at HERA', to be held from 9–11 June, organized jointly by DESY, ECFA and NIKHEF. On 25 February, a hundred enthusiastic participants (plus a lot of interested

DESY people) grouped into six teams discussed specific problems. The groups were led by A. Minten (Technology), W. Bartel (Intersection regions), J. Engelen (Photoproduction, small momentum transfer), E. Longo (Currents, structure functions), R. Cashmore (Exotics) and M. Holder (Existing detectors). A second joint meeting of the working groups is scheduled for 25 April.

STANFORD Physics archaeology

Recent results from high energy muon experiments at CERN (see November 1982 issue, page 362) indicate that there is a significant difference between the nucleon's quark structure (structure functions), extracted from data obtained from muon-steel and muon-deuterium deep inelastic scattering experiments. Now the same effect has been observed in data from deep inelastic electron scattering Experiment E-87 originally performed at SLAC in 1972. This difference exhibits a kinematic variation which is opposite to that expected from Fermi motion effects. A recent 'bag model' estimate by R. Jaffe (MIT), motivated by these results, suggests that the quark distributions in the nucleon become distorted in the nucleus via mechanisms such as six-quark states.

A comparison between the structure functions of nucleons bound in steel versus those of nucleons bound in the deuteron is important not only as a basic physics question, but also because high statistics muon and neutrino high energy scattering experiments utilize heavy nuclear targets. Nuclear corrections can affect the interpretation of the structure function results when compared to the predictions of Quantum