

In its definitive state, the Mainz-McGill experiment's 60 keV radio-nuclide ions from ISOLDE will be first arrested in a radiofrequency (Paul) trap and cooled to about 1 eV before entering the remainder of the apparatus. With this trap still under development, the experiment used instead a surface-ionizing collection foil in the downstream Penning trap. Here the ions are cooled to about 0.1 eV before being delivered to a measuring trap, where they are gently tickled by a cyclotron radiofrequency field to about 20 eV for about a second before finally being ejected to a time-of-flight (TOF) detector.

The radionuclide mass is given by the frequency of the cyclotron field at resonance, detected by its effect on the TOF when the cyclotron energy is transferred to axial motion during the final ejection. Despite the absence of the Paul trap, the experiment achieved unparalleled precision measurements on nuclei ranging out to 14-second cesium-118.

This winter will see installation of the Paul trap collector to complete the system. CERN will then be in a unique position to test some of the most fascinating features of nuclear structure such as the mass of 10-millisecond lithium-11 which, on the basis of laser spectroscopy also carried out at ISOLDE, appears to be a diffuse two-neutron halo surrounding a lithium-9 core. If so, this halo is probably as near as we are ever going to get on earth to the interior of a neutron star.

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*At the recent charged particle acceleration workshop organized by the Yerevan Physics Institute, Armenia, left to right, Robert Palmer (Brookhaven/Stanford), A. I. Artyemyev (Inst. of General Physics, Moscow) and Alexander Varfolomeev (Inst. of Atomic Energy, Moscow).*

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## YEREVAN Acceleration workshop

Sponsored by the Yerevan Physics Institute in Armenia, a Workshop on New Methods of Charged Particle Acceleration in October near the Nor Amberd Cosmic Ray Station attracted participants from most major accelerator centres in the USSR and further afield.

The programme covered the wide range of new acceleration techniques currently under investigation – plasma acceleration, inverse free electron lasers, inverse Vavilov-Cherenkov effect, laser applications, two-beam and wake field techniques.

A similar workshop had been held in 1982, and the progress made since then was very evident. The next meeting is scheduled for 1992.

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## FERMILAB Physics in the 1990s

Brainstorming workshops are a regular feature of the high energy physics scene, but a recent Workshop on Physics at Fermilab in the 1990s was one of the most important in the Laboratory's 20-year history, charting the aims of a research centre which will retain the distinction of having the highest energy accelerator in the world well into the next decade.

From 1985, the future of Fermilab had been intimately tied to the possibility of siting the proposed SSC Superconducting Supercollider in Illinois. With the decision to build the SSC in Texas, Fermilab has to fashion a new identity in support of but ultimately separate from the SSC.

The fervour at the Workshop, held in the Rocky Mountains at

