small cyclotron capable of this type of operation in any clinical facility that possesses a PET or SPECT system. Microprocessor control makes the operation by a trained nuclear medicine technician a possibility, and the reliability of the system makes it feasible.

Such a facility should be able to be installed at a site for a cost comparable to the PET or SPECT facility itself. Since all of the low atomic number short-lived positron emitters could be produced by such a dual particle accelerator, the use of fluorine-18, oxygen-15, and carbon-11 in biologically active materials at facilities other than research institutions becomes practicable.

Advantages of a Cyclotron

Modern cyclotrons with external ion sources are reliable, well-developed machines. When interfaced with industrial microprocessor systems they are inexpensive sources of high energy, high flux particle beams. The production of radioactivity in the cyclotron due to the spilled beam and the consequent high doses acquired by personnel servicing these machines is no longer a major consideration. Extraction by stripping the electron from the negative ions by passing them through a thin foil at the requisite energy is 100% efficient. Furthermore, the extracted beams are of high quality. Consequently, there is little spillage in the beam lines between the accelerator and the target stations.

The technique of using accelerated high current negative ion beams has thus removed the last obstacle to cyclotrons being the preferred sources for the production of radioisotopes. Since the activation problem has been solved, the main argument for the use of a linear accelerator for isotope production has disappeared. The parameters governing the choice of the accelerator now change to the more conventional ones of cost and ease of operation. It is here that the high current negative ion cyclotron has an enormous advantage.

A modern 500 microamp 30 MeV cyclotron requires less than 100 kW of power. It occupies an area which is only 8 feet square and 10 feet high with an equivalent space for the power supplies that are required to run it. The control is done by an industrial PC/AT computer system using industrial programmable logic units to do the control functions and simplify the maintenance. Such machines are already in operation.

Little development work is needed to extend the energy to 70 MeV. At this energy and with a beam current of 500 microamps, almost all of the isotopes currently required by the nuclear medicine clinician or the radiobiological researcher can be produced. Moreover, the operating costs of that production can be supported by the majority of users. There is no longer a reason to look for any other solution to the needs of the nuclear medicine community, and the production of the radioisotopes need not be tied to the operation of the large research accelerators or be disrupted by research programs at those institutions.

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Nuclear Medicine Week Update

The fourth annual Nuclear Medicine Week (NMW) celebrations will be held July 30–August 5, 1989. Efforts have begun to make the week's activities more widely recognized and successful than ever. General Electric is again sponsoring the Media Stars contest, in which nuclear medicine departments compete on the basis of their NMW activities, such as media coverage, open houses, and slide and video shows. Posters and buttons will be available for order beginning this month. For further information or to obtain a guidelines packet contact: Virginia Pappas, CAE, The SNM, 136 Madison Ave., New York, NY 10016-6760, (212)889-0717. An article in the May 1989 *Newsline* will preview this year's NMW poster. ■