

Krogh and Pimentel are cautious about their results, but seem convinced that this is one of the most remarkable of the multifarious reactions that are possible in fluorine atom systems. Much further study seems necessary before really effective chain-branching amplification can be achieved, but the reactions under study at Berkeley offer the big advantage that they can be produced under reasonably controlled conditions. The incentive to create what might be a virtually explosively-pumped infrared chemical laser will certainly be strong.

(Roger Woodham)

PHYSICS EXHIBITION

Declining Fortunes

THE Physics Exhibition, which is staged annually in Alexandra Palace, London, by the Institute of Physics, has been a mere shadow of its former self this year, with another decrease in the number of exhibitors. The downward trend started after the record 1963 exhibition—at which 150 companies exhibited—and by 1970 this number had decreased by about 40 per cent, a real enough reduction in spite of the disappearance of companies because of mergers. This year only thirty-three companies availed themselves of the opportunity to show off their original work on instruments and the like, even though the institute last year relaxed its exhibition rules and allowed exhibitors to display a limited number of products for commercial reasons alone. The remainder of the sixty-seven stands were occupied by nationalized industries, government departments, and educational institutions.

Why do some companies no longer regard the Physics Exhibition as a worthwhile investment of time and money? The institute thinks that the decline can be explained in terms of poor economic conditions, which force companies to look very closely both at their research and development budgets and at the way in which they publicize their products. This point of view is borne out by a spokesman for ICL who said last week that his company is carefully scrutinizing all likely exhibitions to make sure that those in which ICL participates are really good value for money. The Physics Exhibition is seen as a shop window for ICL's research rather than a market place for its computers, and as such has been by-passed this year in the interests of economy. A spokesman for another company which decided not to exhibit this year criticized some of the features of the exhibition itself. It was not, he said, run on sufficiently commercial lines to attract customers in the right numbers; he also pointed out that bodies such as universities paid much less for bench space

and were often allotted stands in the best positions.

The Institute of Physics, for its part, has now taken steps to revitalize the exhibition. One of the criticisms levelled at Alexandra Palace as a venue is that it is both too far from the centre of London and lacking in full exhibition facilities. As a result, the institute officially announced last week that it has entered into an agreement with UTP Exhibitions Ltd whereby the Physics Exhibition will next year be held in Earls Court, London, at the same time as Labex International 1973. Although independent access to each exhibition is planned, there will be free passage between the exhibitions. This means that the number of visitors to the Physics Exhibition next year could be as many as 25,000—about twice last year's total.

Dr Louis Cohen, secretary of the Institute of Physics, says that the two exhibitions should stimulate each other to the advantage of both. But Labex is a biennial event, and it is on the cards that the Physics Exhibition will eventually decide to follow suit.

In spite of the disappointing number of exhibitors, no visitor to the exhibition could have failed to find something of particular interest. There were more historical exhibits this year, for example. One of these was to celebrate the award of Nobel Prizes to Dr Gerard Herzberg and Professor Dennis Gabor, both of whom have close associations with the institute. It was therefore appropriate that the display, which included spectroscopic and holographic demonstrations, should have been mounted by the institute's own spectroscopy, electronics and optical groups. Other exhibits in a similar vein were a small travelling exhibition dealing with aspects of light and vision—which the Science Museum lends to towns throughout Britain—and an exhibit called "Location in Space and Time" put on by the Institute of Physics.

The most eye-catching device was undoubtedly the ultrasonic linear motor developed by Decca Radar. This depends on the fact that the surface wave energy of a disk of barium titanate, 4 cm in diameter and 1 cm thick, driven by an oscillator at 70 kHz couples to another surface in such a way that linear motion ensues along the direction of the disk axis.

About a dozen of the exhibition stands were specifically educational, inasmuch as they aimed to stimulate those who teach physics and those who learn it. Many would say that the educational aspect of the Physics Exhibition is its most important. The Royal Military College of Science, for example, showed a three-dimensional periodic table which helps to overcome the prob-

lems encountered with a normal two-dimensional table.

Two of the exhibits undoubtedly found favour with those interested in astronomy, namely those put on by University College, London, and Instrument Technology Ltd. University College displayed their balloon-borne infrared telescope, complete with its stabilized platform and associated equipment. Although astronomers probably did not learn anything new from the exhibit, the demonstration served to highlight the complexity of the equipment used in astronomical balloon flights these days. Instrument Technology was showing off its latest contribution in the field of imaging devices, the 'Spectracon' electronographic image tube. Electrons are liberated from a photoelectric cathode and focused onto an electron sensitive emulsion; the efficiency of the arrangement is such that as many as 80 per cent of the primary photoelectrons are recorded on the film, so the 'Spectracon' has many advantages over its competitors.

GEOLOGY

Rocks from Mantle

from our Soviet Correspondent

AMONG the materials brought back by the 49th expedition of the Russian geological research ship Vityaz (November 1970 to March 1971) were rock specimens which, after examination in the geochemical laboratories of the Institute of Oceanology of the Soviet Academy of Sciences, are claimed to be examples of material from the upper mantle.

The specimens were obtained from the slope of a deep depression south-west of Samoa and north of Tonga, and are ultrabasic rocks consisting of olivine, pyroxenes and small admixtures of spinels. According to Dr G. B. Udintsev and his colleagues of the geochemical laboratories, such rocks can only have been formed at depths of not less than 100 km and at temperatures above 1,000°C—in other words, in the conditions postulated for the upper mantle. On being raised to the ocean bed the minerals combine with water to form serpentinite. One particularly fine specimen consists of almost pure, pale green serpentinite.

Although specimens that are thought to be mantle material have been collected from the Indian and Atlantic Oceans, the Vityaz specimens are the first of any significance to be obtained from the Pacific.