

acoustically resonating). We will leave the sonic and ultrasonic alone for the time being but are likely to be coming back to them soon, following a one day meeting on Ultrasonic Bubble Chambers organized by the UK Institute of Physics and the Physical Society to be held at the Rutherford Laboratory on 18 March.

Quite a lot of the pioneering work on rapid cycling bubble chambers has been done at Stanford (see, for example, CERN COURIER vol. 9, page 238). They had a 5 cm chamber working at 90 Hz in mid-1969 and have since had a 10 cm chamber also working at 90 Hz continuously over 20 minutes and still giving good quality pictures. Also, Saclay have had a 40 cm chamber cycling once every 22 ms in spasms of 15 expansions but turbulence and heating along the piston shaft have limited steady operation to 5 Hz. A further project is to convert the 14 inch Wisconsin chamber to operate at 30 Hz in one second spasms (after which it rests for 3 s) to be used in the Batavia experimental programme.

But the peg for this short article is the latest move in the Bubble Chamber Development Group at Stanford where, building on their successful experience with the small models, a rapid cycling hydrogen bubble chamber to be used in the physics programme at the 20 GeV electron linear accelerator is under construction. The hydrogen volume will be 375 mm in diameter and 140 mm high.

The camera looks from below. The exit window is of low mass and particularly wide so that particles can emerge over a wide solid angle to be recorded by counters mounted outside the chamber. The expansion system operates with electromagnetic drive (rather similar to the coil of a loud-speaker but of much higher power) and the piston acts from the top of

the chamber. Its natural resonant frequency is 120 Hz but, to ensure better recondensation of the bubbles from cycle to cycle, it will be driven at 60 Hz giving less expansion on alternate cycles of the natural frequency (due to damping) when it is not driven.

The chamber is scheduled to be ready for testing in June.

JINR School

It has been the tradition for many years for CERN to organize a Summer School aimed particularly at young experimental physicists. In 1970 this School was organized in collaboration with the Joint Institute for Nuclear Research, Dubna, and was held at Loma Koli in Finland. This year JINR will take over the organization in collaboration with CERN. The 1971 JINR School of Physics will be held at Varna, Bulgaria, from 13 to 27 June.

The programme of lectures has been arranged as follows: Inelastic particle interaction theory (D. Shirkov, Dubna), Multiparticle production at high energies (A. Bialas, Cracow), Multiparticle production on nuclei at high energies (V. Barashnikov, Dubna), Application of multiple scattering theory (O. Kofoed-Hansen, CERN), Electromagnetic and weak interactions (J. Prentki, CERN), Schrodinger's equation for relativistic two-body processes (I. Todorov, Dubna), Phenomenological approach to high energy processes (V. Matveev, Dubna), Non-singular potential approach (M. Mestverishvili, Serpukhov). There will also be lectures on the research programmes at Dubna, CERN, Serpukhov and Novosibirsk. Special lectures may be given by B. Pontecorvo, Dubna, and Ch. Christov, Sofia. Informal discussion groups will be led by P. Darriulat (CERN), N. Mateev (Sofia), Ch. Palev (Sofia), K. Schilling (CERN), and V. Toneev (Dubna).

Correspondence concerning the School should be directed to Moscow Head Post Office, P.O. Box 79, JINR, V.S. Shvanev, USSR, or Dr. W.O. Lock, Personnel Division, CERN, CH-1211 Geneva 23.

ICTP Courses in 1971

The International Centre for Theoretical Physics at Trieste has organized courses for 1971 on nuclear theory and on computing as a language of physics.

The Nuclear Theory course runs from 13 January to 12 March under the direction of L. Fonda and G. Ripka. Topics covered are — Fundamental Theories of Nuclear Spectroscopy, including dynamics of effective interactions, transfer reactions, models of nuclear excitations, etc... and Common Frontiers between Nuclear and Solid State Physics, including transient field effects, string effects, etc...

The seminar course on Computing as a Language of Physics will take place from 2 August to 20 August. Topics covered will include — partial differential equations in classical physics, particle calculations and the classical N-body problem, quantum mechanical calculations, methodology of computational physics and various advanced applications of computers to physics.

The Centre will also undertake research in elementary particle physics, solid-state physics and nuclear physics during the year.