(in units of $\hbar^2$) increases with increasing spin; then the formula becomes $E_J = (C/2)\ (I - I_0)^2 + (1/2)\ J\ (J + 1)\ /I$. They also require that an equilibrium condition of the form $\partial E\ (I)\ /\ \partial I = 0$ be met for each level. C (the stiffness parameter) and I_0 (the "ground-state moment of inertia") are, for each nucleus, obtained by a least-squares fit of measured energy levels of the ground-state band, which may include states up to $J = 16$.

The figure demonstrates the smooth variation that the Brookhaven group obtained for I_0 as a function of neutron number, N, and atomic number, Z. One can see that I_0 reaches its highest value midway between closed shells, either for neutrons or protons.

For strongly deformed stable nuclei I is almost constant as a function of J; in spherical nuclei, however, I may increase from a negligibly small I_0 to a value several orders of magnitude higher for the 2 + state.

Oak Ridge Uses U^{233} As Reactor Fuel

The world's first U^{233}-fueled reactor (the Molten Salt Reactor Experiment) recently began operating at Oak Ridge National Laboratory. U^{233} could eventually be produced in quantity in molten-salt breeder reactors, in which nonfissionable thorium would be converted into fissionable U^{233}.

The reactor is expected to operate about a year with the U^{233} fuel and to have full power of 8000 thermal kilowatts.

Orbiting Telescopes Scan Ultraviolet Wavelengths

Ultraviolet data from 300 stars, twice what had been collected in the previous 15 years, is being radioed back to ground stations every day by the Orbiting Astronomical Observatory, OAO-II, which began observations 11 Dec.

A cluster of seven telescopes developed at the University of Wisconsin is examining ultraviolet stars one at a time. A bank of four Smithsonian Astrophysical Observatory telescopes is mapping the sky in ultraviolet wavelengths. Ultraviolet emissions, which do not penetrate the earth's atmosphere, provide new information about very young, very hot stars that radiate most of their energy in this region.

The OAO is the second launched by the US. The first OAO lost power after launch in April 1966. A third, scheduled for late this year, will carry a 97-cm NASA telescope. A fourth, to fly in late 1970, will carry an 81-cm Princeton telescope.

James E. Kupperian is project director.

The Soviet Union orbited an astronomical observatory last summer but has not reported any details of the results.

Tunnel Dug at Stanford For Superconducting Linac

A tunnel 183 meters long and 4 meters in diameter has been dug for the 152-meter superconducting niobium linear accelerator to be built underneath the Stanford High Energy Physics Laboratory (PHYSICS TODAY, Jan. 1966, page 96). The 15 000-liter, 300-watt superfluid helium refrigerator is being installed, and the first 6.1-meter aluminum dewar sections have been delivered. William M. Fairbank and H. Alan Schwettman, heading the design team, hope to have the linac in operation by 1971.

Bernoulli Theorem Confirmed In Myrtle-Beach Experiments

Latest word on the Bernoulli theorem comes from a man and a boy working with a piece of wood at Myrtle Beach, S.C. Ronald D. Edge, a British physicist now at the University of South Carolina, collaborated with his young son on fluid-flow experiments with a "surf skimmer."

The skimmer is a plywood disc 70 cm in diameter. The user skims the disc across shallow water, runs after it and jumps on, and is carried 6 meters or more. Edge explains (*Am. J. Phys.*, **36**, 630) that inertia rather than viscosity or buoyancy supports the disc. Observations of distance traveled in relation to depth of water agree closely with calculations from the Bernoulli equations. Edge ends the paper with credit to his son for "providing the experimental data."

New Cornell Facility To Probe Planets

Cornell has a new facility, the Laboratory for Planetary Studies, which will be directed by Carl Sagan. Researchers will simulate the primitive environment of the earth and the contemporary environment of other planets, then irradiate these environments and analyze them for organic molecules produced. Other work planned includes infrared spectroscopy of simulated planetary atmospheres, duplication of surfaces and clouds of other planets, telescopic observations and theoretical studies of planets.

IN BRIEF

Recently the 30-inch (76-cm) hydrogen bubble chamber at Argonne was expanded and took photographs five times during each pulse of the Zero Gradient Synchrotron. The interval between pictures was 160 millisec, and the time between ZGS pulses was 3.8 sec. Routine physics runs in the five-pulse mode will start soon. Double and triple pulsing are already common at the ZGS.

A space physics research satellite was launched 5 Dec. from Cape Kennedy for the European Space Research Organization. Called HEOS, the satellite will measure magnetic fields, cosmic radiation and solar wind outside the earth's magnetosphere.

Two spacecraft to orbit Mars during the 1971 opposition have been approved by NASA. Each of the two Mariners will orbit Mars for three months or more, at different angles to the planet's equator, to provide complete coverage. A landing mission is planned in 1973.

How the earth bends and yields to tiny earthquakes and tidal forces will be studied at the University of California at San Diego under a $25 000 Office of Naval Research grant.

A 61-cm reflector telescope, designed for photometry and stellar magnetic-field studies, has been installed at Columbia's new observatory in Harriman, N.Y. Lodewyk Woltjer, astronomy department chairman, is building a spectrograph to be housed in an adjoining building.

A permanent ocean-bottom geophysical station has worked so well for Columbia's Lamont Geological Observatory that a network of such instruments is now proposed. Instruments are packed into three 55-cm aluminum spheres lowered into 3.5 km of water 200 km west of San Francisco in May 1966. Currents, pressure, seismic events and sound propagation are measured. □