Physics Colloquium

What Do We Learn from the Nuclear Binding Energies

WEDNESDAY

SEPTEMBER 9

4:00 P.M.

RM 118 NSH

Dr. B. Alex Brown, Michigan State University

Binding energies have been measured for about 3000 nuclei. It is well known these are qualitatively described by the liquid drop model. But on top of this there are discontinuities due to the shell gaps in the nuclear mean field, and oscillations due to the pairing interaction between nucleons. I will illustrate these by comparing data with schematic and realistic models.

I will explain why the smallest pairing energy has been revealed by a recent measurement for the binding energies of the neutron-rich nuclei 53Ca and 54Ca. I will show a connection with the nuclear matrix elements involved in neutrino-less double-beta decays that are important for fundamental properties of the neutrino.

Refreshments
in Rm 202 NSH
@ 3:30 pm

Notre Dame Science
Department of Physics