

TUESDAY, MAR. 27, 2001
RM 113 MacNAUGHTON BLDG.
UNIVERSITY OF GUELPH
4:00 p.m.

PROF. SAMPA BHADRA

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Looking Deep Inside the Proton or How We Came to Sweat the Small Stuff

We delve into the simple proton to unearth the interactions of quarks and gluons within. These interactions are viewed with the world's largest electron-proton microscope: the ZEUS detector operating at the HERA accelerator in Germany. The high collision energy provides a small spatial resolution (small wavelength) probe, the virtual photon exchanged between the electron and proton. QCD, the theory of strong interactions that govern the quarks and gluons, is tested to great precision from the results of the quark density distributions in the proton. In addition, the structure of the photon can also be studied in photoproduced events. We will see how the data compare to the current theory that explains what we know of the fundamental particles and forces, namely the Standard Model. The real challenge is to probe for signs of physics that is not so Standard after all!

COFFEE WILL BE AVAILABLE PRIOR TO THE COLLOQUIUM