

### Area Seminar

Title Present Status of Nuclear Quadrupole Moments in [39-41]-K Isotopes

Date and Time 26/10/2012 16:00:00

Speaker Yashpal Singh

Speaker PRL, Ahmedabad

Area Theoretical Physics

Venue Room No. 469

Abstract Quadrupole moment ( $Q$ ) of an atomic nucleus describes the effective ellipsoidal charge distribution inside the nucleus. There is no direct experimental technique available to measure this quantity, however using nuclear models, it is possible to estimate  $Q$  of different isotopes, but currently there is no such standard nuclear model which can predict this quantity precisely. By combining measurements of atomic hyperfine structure splitting with the corresponding calculations, it is possible to infer the model independent value of  $Q$  in an atomic system. Provided both the measurement and the calculated result are very accurate, the obtained  $Q$  value will be very precise which can further be used to test against the results obtained by different nuclear models. In the present talk we shall discuss the recently reported values of  $Q$  in [39-41]-K isotopes which differ significantly from the known standard values in the literature.