DEPARTMENT OF PHYSICS

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Dated: 29.1.19

TPSC SEMINAR NOTICE

SPEAKER: Prof. Nico Orce
Professor in Physics
Faculty of Natural Science
University of the Western Cape, South Africa

TITLE: Nuclear polarizability at low excitation energies

DATE & DAY: 31st Jan. 2019, Thursday

VENUE: Seminar Hall

TIME: 3.30 P.M.

Abstract: This work provides a deeper insight onto how nuclei polarize, which, in turn, elucidates nuclear collectivity and the nuclear shell model. New polarization potentials have been determined based on: 1) the latest photo-neutron cross section evaluation, and 2) the mass dependency of the symmetry energy. The second one opens up the possibility for a parameter-free polarization potential. Both polarization potentials are essentially the same for heavy nuclei. The polarization effect on quadrupole collectivity is more substantial than previously assumed for light nuclei. Particular cases are discussed where long-standing discrepancies between high-precision Coulomb-excitation and lifetime measurements still remain. A solution to the long-standing discrepancy between B(E2) values determined in ^{18}O by several Coulomb-excitation studies and a high-precision lifetime measurement is provided in favor of the latter. Polarization effects in light nuclei also influence the determination of spectroscopic quadrupole moments in Coulomb-excitation measurements. The hindrance of polarizability observed in the photo-neutron cross section for single-closed shell nuclei is calculated to have a negligible effect on quadrupole collectivity, within the existing experimental uncertainties

All interested are cordially invited to attend.

Nandeep

Chairperson