



OAW

Austrian Academy
of Sciences

INVITATION

HEPHY-SMI seminar on
fundamental interactions and symmetries

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P and T violation in heavy atoms

ABSTRACT:

Searches for violations of the fundamental discrete symmetries parity (P), time reversal (T) and charge conjugation (C) provide guidelines for model building beyond the Standard Model of the electroweak interactions (SM). Here, experiments are performed on many different energy scales. At low energies searches for permanent electric dipole moments (EDMs) have a robust discovery potential while measurements of atomic parity violation (APV) test the electroweak interactions.

These effects are strongly enhanced in heavy atomic systems and they become accessible in precision atomic physics experiment. The sensitivity of neutral radium towards EDMs arises from its nuclear and atomic structure which result radium offers the largest known atomic enhancement factors to nuclear and electron EDMs.

Furthermore atomic parity violation can be measured in a single trapped radium ion. The precision determination of the weak interaction effects can be used to extract the weak mixing angle (Weinberg angle) with an anticipated five-fold improvement over best existing experiment. The progress in both experimental efforts will be discussed.

DATE:

Wednesday, 04.12.2013 - 17:00 s.t.

VENUE:

Stefan Meyer Institute
for subatomic Physics
1090 Wien, Boltzmanngasse 3
Seminarraum 2.08

<http://www.smi.oeaw.ac.at/groups/hephysmiseminar/>



Stefan-Meyer-Institut
für subatomare Physik

