

# *EHQG/Tau lepton/KMI-theory Seminar*

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title :

*Atomic Electric Dipole Moments  
as Probes of CP Violation*

speaker :

*Bhanu Pratap Das  
( Indian Institute of Astrophysics )*

date/time :

*May 15 (Tue) 17:00 PM*

abstract :

*The existence of a nonzero permanent electric dipole moment (EDM) of a non-degenerate physical system is a signature of the simultaneous violations of time-reversal (T) and parity (P) symmetries. T violation implies the combined charge conjugation (C) and P violation (CP violation) via the CPT theorem.*

*Atomic EDMs are excellent probes of physics beyond the standard model, and they provide important insights into a rich variety of CP violations – leptonic, semi-leptonic, and hadronic sectors. Experimental searches are underway for the EDMs of paramagnetic (open-shell) and diamagnetic (closed-shell) atoms. The results of the experiments can be combined with those of sophisticated atomic many-body calculations to determine various CP violating coupling constants at the atomic level. These quantities can ultimately be related to the CP violation parameters at the elementary particle level and tested with the predictions of the different particle physics models.*

*The present talk will give an introduction to atomic EDMs and touch upon some of the ongoing searches of these EDMs as well as their future prospects.*

place :

*ES034*