# RCNP
# NUCLEAR PHYSICS
# THEORY SEMINAR

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| Title | Lattice calculation of the nucleon EDM |
| Speaker | Hiroshi Oki (Nara Women's University) |
| Date and Time | Thursday, December 7th, 2017, at 16:00 |
| Place | Lecture room 1, 6th floor, RCNP |

Abstract:
High precision nuclear physics is a vital part of searches for new physics. In particular, observation of permanent electric dipole moments (EDMs) of nucleons (and nuclei) would be direct evidence for violation of CP symmetry. We discuss the methodology for computing the nucleon form factors and EDM on a lattice. We find that in previous lattice calculations there is a spurious contribution from the Pauli form factor due to inadequate definition of the form factors when parity mixing of nucleon fields is involved. We perform lattice calculations of nucleon EDM induced by CP-odd quark-gluon (chromo EDM) interactions using two different methods: from the form factor and the energy shift in the background electric field in the presence of the CP-odd interaction. We confirm that two results are consistent if the new formula is used. The associated correction reduces the values for the EDM form factors, so that most of lattice results for theta EDM become consistent with zero. We also review recent progress on lattice calculations of nucleon EDM induced by other CP violating interactions

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