



Contribution ID: 158

Type: not specified

Community input to the European Strategy on particle physics: Searches for Permanent Electric Dipole Moments

Searches for electric dipole moments (EDMs) in fundamental particles and quantum systems with spin are pivotal experiments at the intersection of low-energy and high-precision particle physics. These investigations offer a complementary pathway to uncovering new physics beyond the Standard Model, parallel to high-energy collider searches. EDM experiments are among the most sensitive probes for detecting non-standard time-reversal (T) symmetry violations and, via the CPT theorem, CP-violation (CPV). Current EDM measurements test new physics at mass scales in or above the 10 – 100TeV range.

This community input to the European Particle Physics Strategy Update highlights the status of the field, and describes challenges and opportunities in Europe.

Authors: KESHAVARZI, Alex (University of Manchester); BORSCHEVSKY, Anastasia; PAPA, Angela; LAUSS, Bernhard; RIES, Dieter Achim; MARTINEZ-VIDAL, Fernando (IFIC, Universitat de Valencia-CSIC); PIEGSA, Florian Michael; Prof. ONDERWATER, Gerco (University of Maastricht); NEYENS, Gerda (KU Leuven (BE)); DOBACZEWSKI, Jacek; DE VRIES, Jordy; FLANAGAN, Kieran (University of Manchester); DILUZIO, Luca; NIES, Lukas (CERN); KORTELAINEN, Markus; AU, Mia (CERN); Dr JENTSCHHEL, Michael (Institute Laue-Langevin); TARBUTT, Michael; ATHANASAKIS-KAKLAMANAKIS, Michail (CERN); NERI, Nicola (Università degli Studi e INFN Milano (IT)); VIVES GARCIA, Oscar Manuel (Univ. of Valencia and CSIC (ES)); Prof. FIERLINGER, Peter (Technical University Munich); STOFFER, Peter (Paul Scherrer Institut); Dr SCHMIDT-WELLENBURG, Philipp; Prof. BERGER, Roland (U. Marburg); Prof. STELLMER, Simon (University Bonn); DEGENKOLB, Skyler; HOEKSTRA, Steven (University of Groningen, and Nikhef); HOEKSTRA, Steven (University of Groningen, and Nikhef); FLEIG, Timo (University of Toulouse); VAN KOLCK, Ubirajara; SCHMIDT, Ulrich; Prof. SANZ GONZALEZ, Veronica (Universities of Valencia and Sussex); CIRIGLIANO, Vincenzo; Dr GRIFFITH, W. Clark (University of Sussex); Prof. SEMERTIZIDIS, Yannis (KAIST); FILIPPONE, brad (caltech); CARUGNO, giovanni (INFN)