

DF 7: Multiferroics III (Joint Session of MA, DF, DS, KR, TT)

Time: Tuesday 10:15–10:45

Location: HSZ 04

Invited Talk

DF 7.1 Tue 10:15 HSZ 04

Search for a permanent electric dipole moment of an electron: Multiferroics bring us a step closer — ●MARJANA LEŽAIĆ
— Peter Grünberg Institute, Forschungszentrum Jülich, 52425 Jülich, Germany

Although it is conjectured that the Big Bang created equal amounts of matter and antimatter, the Universe that we know consists only of matter. It is not yet clear why the Nature treats matter and antimatter in a different way. One possibility that is being intensively explored lies in the existence of a permanent electric dipole moment

(EDM) of an electron. Electron's EDM would violate time-reversal symmetry leading to charge-parity symmetry violation and as a consequence, would act as a source of the matter-antimatter asymmetry. The talk will present a multidisciplinary study [1] including theoretical solid state design, consequent synthesis and characterization of a multiferroic material, (Eu,Ba)TiO₃, with characteristics optimized for a search for electron's EDM.

[1] K. Z. Rushchanskii, S. Kamba, V. Goian, P. Vaněk, M. Savinov, J. Prokleška, D. Nuzhnyy, K. Knižek, F. Laufek, S. Eckel, S. K. Lamoreaux, A. O. Sushkov, M. Ležaić and N. A. Spaldin, *Nature Mater.* **9** 649 (2010).