

**MA 16: Multiferroics III: Exotic Properties - Invited Talk (jointly with DF, DS, KR, TT)**

Time: Tuesday 10:15–10:45

Location: HSZ 04

**Invited Talk**

MA 16.1 Tue 10:15 HSZ 04

**Search for a permanent electric dipole moment of an electron: Multiferroics bring us a step closer** — ●MARJANA LEŽAIĆ  
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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)TiO<sub>3</sub>, 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).