



Contribution ID: 39

Type: **oral presentation**

## **Materials designed for electronics and IT technologies: porous silica thin films containing various functional units**

*Tuesday, 4 July 2017 16:00 (20 minutes)*

The present work is devoted to novel classes of nanomaterials: mesoporous silica thin films containing vertically aligned channels containing functional units or crystalline structures. Such a functionalization makes the materials highly applicative in electronics or IT technologies. We consider three types of silica based materials, containing various functional units inside pores. Porous silica films containing single molecular magnets in pores bottom can play a role of a layout of independent, bistable magnetic units. Such a material can be used as molecular neurons. Similar material containing permanent magnetic specimen inside pores can be use for fabrication of super-dense magnetic memory. Thin silica films with channels arranged perpendicular to the substrate and containing strongly dipolar units (copper phosphonate) have strong non-linear optical (NLO) response. Moreover, NLO susceptibility can be tune by means of functional groups concentration variation. All materials quoted above have strong applicative potential.

**Primary author:** Dr LASKOWSKI, Lukasz (Czestochowa University of Technology)

**Co-author:** Dr LASKOWSKA, Magdalena (Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland)

**Presenter:** Dr LASKOWSKI, Lukasz (Czestochowa University of Technology)

**Session Classification:** Surfaces & Interfaces

**Track Classification:** Miscellany (biologically oriented systems, new ideas, advanced methods,...)