

Cooperation of Latvian and Lithuanian Scientists in Studies of Ferroelectrics and Related Materials

Jūras Banys¹, Andris Sternberg²,

Maija Antonova², Šarūnas Bagdzevičius¹, Eriks Birks², Šarūnas Svirskas¹, Karlis Bormanis²,
Marija Dunce², Robertas Grigalaitis¹, Karlis Kundzins², and Jan Macutkevič¹

¹Faculty of Physics, Vilnius University, Lithuania

² Institute of Solid State Physics, University of Latvia, Latvia

e-mail: juras.banys@ff.vu.lt e-mail: stern@latnet.lv

Recent years have witnessed the fruitful collaboration between Lithuanian and Latvian researchers in the field of ferroelectricity. Two main institutions were involved in the scientific work – Faculty of Physics, Vilnius University and the Institute of Solid State Physics of University of Latvia.

Lithuanian team is concentrated on the broadband dielectric spectroscopy techniques which extend from milihertz range up to 120 gigahertz frequency. These experimental methods allow to investigate the dipolar relaxation which gives crucial contribution to the properties of ferroelectrics and related materials.

On the other hand, Latvian team in the framework of this cooperation is focused on the synthesis of high quality ferroelectric ceramics and basic characterization of the material – crystallographic structure by means of x-ray diffractometry and microstructure by TEM and AFM. Furthermore polarization, dielectric, electromechanical, electrocaloric parameters are studied. As a result, phase diagrams of complex solid solution systems were determined.

A lot of effort was devoted to the relaxors, including canonic relaxor lead magnesium niobate (PMN), lead scandium niobate (PSN) and their solid solutions and other materials possessing B-site chemical disorder. Afterwards it was extended to the A-site substituted relaxors which had sodium bismuth titanate (NBT) as a main component. Furthermore, the collaboration involving additional experimental and theoretical investigations were developed [1, 2].

Subsistent presentation will shed the light on the previous work which have been done as well on the current status and future perspectives. The presentation is dedicated to commemorate the 10th anniversary of Lithuania's and Latvia's EU membership.

References

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2. J. Macutkevic, S. Kamba, J. Banys, A. Brilingas, A. Pashkin, J. Petzelt, K. Bormanis, and A. Sternberg, *Phys. Rev. B* **74**, 104106 (2006).