

Program

Monday, May 23

TUTORIALS (PRAGUE)

8:30–10:00 P. Kužel
Effective medium in composites including plasmonic and Mie resonances

10:15–11:45 H. Němec
Terahertz spectroscopy – methods and applications

11:45–12:45 Lunch

TUTORIAL (PRAGUE)

12:45–14:15 M. Paściak
Correlated disorder in crystalline materials – experimental methods and simulations

15:00 Bus departure from Prague

15:00–18:30 Registration in Harrachov

18:00–21:00 Dinner

TUTORIAL (HARRACHOV)

20:00–21:30 P. Baláž
Introduction to machine learning in solid state physics

Tuesday, May 24

7:00–9:30 Breakfast

TUTORIAL

8:30–9:40 P. Márton

Simulation of ferroelectric domain patterns using phase-field method

9:40–10:10 Coffee break

Session 1 – PHASE TRANSITIONS I (chairs T. Ostapchuk & M. Trzebiatowska)

10:10–10:15 Opening

10:15–10:50 J. Íñiguez (invited)

Giant voltage amplification from incipient ferroelectric states

10:50–11:10 E. Buixaderas

Disentangling the dielectric anisotropy in strontium barium niobate

11:10–11:30 M. Guennou

Polar phonon modes in ferroelastic BiVO_4

11:30–11:50 J. Dec

Interfacial polarization phenomena in compressed nanowires of SbSI

11:50–12:25 A. Gagor (invited)

Crystal engineering and structure – property relationships in organic – inorganic lead halides

12:30–14:30 Lunch

Tuesday, May 24

Session 2 – THEORY (chairs J. Íñiguez & I. Rychetský)

- 14:30–14:50 M. Paściak
New adventures with polar vortices
- 14:50–15:10 P. Márton
Modeling of a 180° charged domain wall in ferroelectric PbTiO₃
- 15:10–15:30 M. A. Pereira Gonçalves
Polar skyrmions in BaTiO₃ at low temperature
- 15:30–15:50 J. Kulda
Efficient modeling of single crystal diffuse scattering

15:50–16:20 Tea time

Session 3 – PHASE TRANSITIONS II & COMPETITION (chairs J. Banys & M. Guennou)

- 16:20–16:55 K. Roleder (invited)
Unusual behavior of universalities of conductivity spectra of proton conductors
- 16:55–17:15 K. Tesař
Volumetrically incomplete phase transition: example and outlooks
- 17:15–18:00 Student competition

18:00–20:00 Dinner

20:00–21:30 **Poster Session I**

Wednesday, May 25

7:00–9:30 Breakfast

TUTORIALS

8:30–9:30 V. Janiš

Spin glasses — random magnetic materials with macroscopic order

9:30–10:30 V. Novotná

Liquid crystals — through the history towards ferroelectric nematics

10:30–11:00 Coffee break

Session 4 – LIQUID CRYSTALS (chairs V. Novotná & W. Piecek)

11:00–11:35 M. A. Osipov (invited)

Different mechanisms of phase transitions and liquid crystal ordering in rod-coil block copolymers

11:35–12:10 M. Mrukiewicz

Electrical characterization of the ferronematic phase

12:00–14:00 Lunch

14:00–18:30 Excursions and/or free time

18:00–20:00 Dinner

20:00–21:30 **Poster Session II**

Thursday, May 26

7:00–9:30 Breakfast

TUTORIAL

8:30–9:45 S. Kamba

Static and dynamic magnetoelectric coupling in multiferroics

9:45–10:15 Coffee break

Session 5 – PHASE TRANSITIONS III (chairs J. Dec & A. Gagor)

10:15–10:50 W. Schranz

Domain walls in ferroic materials: what can we learn from layer group analysis?

10:50–11:10 C. Kadlec

Unusual features of lattice dynamics in lawsonite related to its phase transitions: a study using broadband dielectric spectroscopy

11:10–11:30 M. Šimėnas

Suppression of phase transitions and glass phase signatures in mixed cation halide perovskites

11:30–11:50 I. Jankowska-Sumara

Composition-driven structural phase transitions in Sn doped antiferroelectric PbHfO_3 : A review

11:50–12:25 Š. Svirskas (invited)

Dielectric relaxation in BaTiO_3 based solid solutions

12:30–14:30 Lunch

Thursday, May 26

Session 6 – MULTIFERROICS AND MAGNETISM (chairs C. Kadlec & B. Andrzejewski)

- 14:30–14:50 J. A. Moreira
Strain relaxation dynamics of multiferroic orthorhombic manganites
- 14:50–15:10 M. M. Gomes
Unravelling the structural phase sequence and origin of its modulation in multiferroic $\text{Bi}_{0.7}\text{La}_{0.3}\text{FeO}_3$
- 15:10–15:30 P. Vilarinho
Magnetic anomalies and spin-phonon coupling in RFeO_3
- 15:30–15:50 S. Kamba
THz-field-induced transient multiferroicity in quantum paraelectric KTaO_3

15:50–16:10 Tea time

16:10–16:20 Group photo

Session 7 – DOMAIN WALLS (chairs P. Ondrejkoř & W. Schranz)

- 16:20–16:55 L. Eng (invited)
Reconfigurable 2D electron gases in ferroelectric domain walls
- 16:55–17:15 P. Bednyakov
Formation of ferroelectric charged domain walls in BaTiO_3 single crystals
- 17:15–17:35 I. Gaponenko
Correlative imaging of ferroelectric domain walls
- 17:35–17:55 K. Cordero-Edwards
Novel functionalities at twin domain crossings

17:55–18:20 J. Pokorný
History of swing music

19:30–24:00 Conference dinner

Friday, May 27

7:00–9:30 Breakfast

Session 8 – PHASE TRANSITIONS IV (chairs T. Troha & Z. Trybuła)

9:00–9:35 J. Petzelt (invited)

Unusual dynamics of the ferroelectric transition in $K_{1-x}Li_xTaO_3$

9:35–9:55 P. Ławniczak

Non-trivial electric response of low-temperature proton conductors based on imidazolium isomers

9:55–10:15 C. Milesi-Brault

Soft mode and low-frequency lattice dynamics of $BaZrO_3$ single crystals

10:15–10:45 Coffee break

Session 9 – PHASE TRANSITIONS V (chairs D. Kajewski & I. Jankowska-Sumara)

10:45–11:05 F. Kadlec

Dynamics and orientations of water molecules linked to their low-temperature ferroelectric ordering in hydrated beryl

11:05–11:25 L. Musy

Probing the behaviour of surface water and ferroelectric $PbTiO_3$ thin films as a function of relative humidity and temperature

11:25–11:45 P. Kužel

Time-resolved near-field terahertz spectroscopy reveals charge confinement in GaAs nanobars beyond geometry

11:45–12:05 D. Nuzhnyy

Broadband dielectric spectroscopy of conducting core-dielectric shell nanocomposites

12:05–12:30 Closing

12:30–14:00 Lunch

14:00 Bus departure to Prague

Posters

P1 – M. Adamec

NMR studies of multiferroic XMn_7O_{12} ($X=Ca, Sr, Bi$) and $BiMn_3Cr_4O_{12}$

P2 – B. Andrzejewski

Electric and magnetic properties of $Ca_2Al_{2-x}Fe_xO_5$ brownmillerites

P3 – P. Baláž

In-plane skyrmion valve made of pinned 90 degree magnetic domain walls

P4 – S. Balčiūnas

Dielectric properties of mixed halide perovskites

P5 – J. Banys

Phase transitions in $CsPbBr_3$ single crystals

P6 – D. Bohdanov

Towards optical inspection of strain state of oxide thin films

P7 – V. Bovtun

Microwave spectroscopy of multiferroic hexaferrite ceramics

P8 – V. Bovtun

Composites of epoxy resin filled with recycled carbon microfibers as possible microwave shielding/absorbing materials

P9 – A. Bubnov

Self-organising behaviour of new chiral liquid crystalline materials possessing several (S)-lactate chiral groups

P10 – R. Bulanadi

Induced and innate defects in ferroelectrics and their effects on switching dynamics

P11 – M. Chrunik

Synthesis, structural and microstructural studies of $(1-x)PbZrO_3-xBiFeO_3$ solid solutions with possible thermally-induced multiferroic state

P12 – B. Dabrowski

Why the single-ion displacive-type perovskite multiferroics are so rare?

P13 – D. Dardas

Optical and electrooptical study and stabilization of homogeneous region in complex liquid crystal systems by controlled laser photobleaching

P14 – D. Drozdowski

Effect of halide mixing on structural and optoelectrical properties of the 3D and 2D methylhydrazinium lead halide perovskites

- P15 – V. Goian
Lattice dynamics in strained thin films with Ruddlesden–Popper structure
- P16 – D. Havryliuk
Crystal growth conditions and quality of the lead hafniate crystals
- P17 – A. Hilczer
Dielectric spectra of $Sr_{0.95}Nd_{0.05}Fe_{12-x}Sc_xO_{19}$ hexaferrite nanoceramics
- P18 – J. Hlinka
Coherently flipping regions in paraelectric $Ba(ZrTi)O_3$ relaxors
- P19 – D. Kajewski
Long-term isothermal phase transformation in lead zirconate
- P20 – M. Kempa
Broadband dielectric properties of $Ba(ZrTi)O_3$ ceramics
- P21 – A. Klíč
Ordering of confined water molecules in Beryl crystal
- P22 – L. Kozielski
Meta composites and meta materials for electromagnetic wave screens
- P23 – L. Kozielski
Handy cold atmospheric plasma generator for disinfection against COVID-19
- P24 – P. Ławniczak
New proton conductors based on starch and imidazole
- P25 – B. Loska
Molecular interactions in the twist-bend nematic phase
- P26 – M. Lubszczyk
Preparation and properties of $K_{0.5}Na_{0.5}NbO_3$ ceramics obtained by the modified wet chemistry method
- P27 – M. Mączka
Raman scattering and single-crystal X-ray diffraction studies of pressure-induced phase transitions in hybrid organic-inorganic perovskites
- P28 – A. Maia
Lattice dynamics and soft-mode driven ferroelectricity in multiferroic $BiMn_3Cr_4O_{12}$
- P29 – E. Markiewicz
Effect of Al doping on the conductivity of $Ca_2Fe_2O_5$ brownmillerite
- P30 – K. Merkel
Dielectric relaxation in the twist-bend nematic phase of the achiral dimers

P31 – S. Mironov

Lateral substitution as an effective tool for tuning the self-organising behaviour of chiral liquid crystals

P32 – H. Němec

Nonlinear terahertz conductivity in semiconductor nanoparticles: semiclassical calculations

P33 – V. Novotná

Bent-core liquid crystals with prolonged arm ended by a nitrophenyl group

P34 – P. Ondrejko

Calculation of diffuse scattering from ferroelectric textures

P35 – T. Ostapchuk

Soft-mode anharmonicity in rutile TiO_2 single crystals

P36 – M. R. Parida

Terahertz response of structural architectures of Mxenes

P37 – M. Paściak

Liquid water-silicon interface: molecular dynamics study

P38 – P. Perkowski

Dielectric properties of synclinic and anticlinic smectic in enantiomeric and racemic version

P39 – W. Piecek

Fast liquid crystal light switches with frozen flexoelectric polarisation

P40 – J. Pokorný

Domain boundaries in BiFeO_3 ceramics by PFM and Raman spectroscopy

P41 – M. Ptak

Raman spectroscopy as a probe in the studies of structural phase transition mechanisms in hybrid perovskites

P42 – V. Pushkarev

Charge confinement and band bending in single-crystalline GaAs nanostructures

P43 – A. Pylypets

Raman spectroscopy of bismuth germanate using twisted light

P44 – I. Rafalovskyi

Laser-induced defect engineering in relaxor single crystals

P45 – D. Repček

Quantum bicriticality tuning in $(\text{Eu}, \text{Ba}, \text{Sr})\text{TiO}_3$ system

P46 – D. Rodak

Application of piezoelectric generators of atmospheric cold plasma for disinfection

P47 – D. Rodak

Design of a piezo stack-based XYZ Parallel positioning stage

P48 – I. Rychetský

Symmetry and polarity of antiphase boundaries in PbZrO_3

P49 – M. Savinov

Indirect electro- and magneto-caloric effects in $\text{BiMn}_3\text{Cr}_4\text{O}_{12}$

P50 – A. Singh

Sub-bandgap photoactivity of MoS_2 monolayer in a graphene- MoS_2 -graphene heterostructure

P51 – V. Stepkova

Morphological instability of ferroelectric charged domain walls

P52 – S. Stulov

Ferroelectric liquid crystals admixed with magnetic nanoparticles

P53 – T. Troha

Ultrafast long-distance electron-hole plasma expansion in GaAs mediated by stimulated emission and reabsorption of photons

P54 – M. Trzebiatowska

Nonobvious behavior of an obvious material - phase transitions in dielectric perchlorate

P55 – M. Tykarska

Influence of achiral two- and three-ring pyrimidines dopants on mesomorphic and electro-optic properties of orthoconic ferroelectric liquid crystal

P56 – M. Urbańska

Synthesis and properties of (R,S)-1-methylpentyl 4'-hydroxybiphenyl-4-carboxylate derivatives, which can be separated by chiral chromatography

P57 – V. Železný

Low-temperature infrared and THz studies of the MAPbBr_3 perovskite