# Program PIPT8, June 23-27 2024

## Monday June 24

8.00 Registration and coffee

### Session 3. Photo-induced Structural phase transitions

9.00 Eric Collet
*Symmetry breaking and isosymmetric structural dynamics during photoinduced phase transitions*

9.45 Herma Cuppen
*Phase transitions in molecular crystals*

10.15 Claus Ropers
*Probing light-induced phase transitions by ultrafast electron diffraction*

10.45 Coffee Break

11.15 Meredith Henstridge
*Nonlocal Nonlinear Phononics*

11.45 Sheng Meng
*Light control of phase transitions: insights from ab-initio quantum dynamics simulations*

12.15 Etienne Janod
*Propagating insulator-to-metal phase transition at acoustic velocities in a prototype Mott material*

12.30 Michal Magott
*Reversible photoinduced formation of persistent ferrimagnetic order in paramagnetic solids*

12.45 Oleksander Kovalenko
*Signatures of Jahn-Teller-like magnetic instability in TbFeO3 and dynamical strong coupling of Fe spins and Tb orbitals"*

13.00 Lunch

### Session 4: Photo-induced control of topological states of matter

14.00 Johan Mentink
*Understanding ultrafast nanomagnetism - insights from topological fluctuation states*

14.45 Thomas Lagrange
*Probing the Itinerant Magnetic Behavior of FeRh using In-situ Electron Magnetic Circular Dichroism (EMCD)*

15.15 Xiaoyue Zhou
*Ultrafast terahertz dynamics of the photo-induced topological phase transition in type-II Weyl semimetal $WTe_2$*

15.30 Coffee Break

16.00 Chong Yu Ruan
*The many facets of ultrafast Electron Diffraction and Microscopy: Development and Applications*

16.30 Atsushi Ono
*High harmonic generation from electrons moving on topological spin textures*

**16.45 Posters**

## Tuesday June 25

08.30 Registration and coffee

### Session 5: Ultrafast optical manipulations of Ferroelectrics and Multiferroics

9.00 Roberto Merlin
*Magnetophononics: Breaking Time Reversal Symmetry with Non-Maxwellian Magnetic Fields*

9.45 Aaron Lindenberg
*Hidden domain boundary dynamics towards crystalline perfection*

10.15 Stefano Bonetti
*Terahertz-Driven Phonons in Perovskites: Dynamical Multiferroicity and Unexpected Coupling Pathways*

10.45 Coffee Break

11.15 Vladimir A. Stoica
*Long-range dynamical correlations of photoinduced polar supertextures*

11.45 Sylvia Matzen
*Controlling photo-induced strain in ferroelectric thin-film devices*

12.15 Stanislav Kamba
*Terahertz field-induced magnetic moment and polar distortion in the quantum paraelectric diamagnets*

12.30 Ryo Fukaya

*Element-specific transient dynamics of magnetic orders in multiferroic manganites studied by time-resolved resonant soft X-ray scattering*

12.45 Inhyeok Choi
*Real-time dynamics of angular momentum transfer from spin to acoustic chiral phonon in oxide heterostructures*

13.00 Lunch

## Session 6: **Magnetic PIPT/Magneto-phononics**

14.00 Alexey Kimel
*Ultrafast antiferromagnetism- terra incognita beyond conventional approximations*

14.45 Chiara Ciccarelli
*THz spectroscopy studies on magnetic interfaces*

15.15 Urs Staub
*Resonant driving of phonon/magnon and orbital modes*

15.45 Luyi Yang
*Discovery of terahertz orbitally-coupled magnons in a kagome ferromagnet*

16.15 Coffeebreak

16.45 Dominik Juraschek
*Chiral phonons: Controlling electronic phases with a twist*

17.15 Matteo Savoini
*Time-resolved X-ray diffraction: a powerful tool to investigate photo-induced phase transitions*

17.45 Elton J. G. Santos
*Exploring the Limits of Ultrafast Magnetism in vdW magnets*

18.15 Jun Xiao Lin
*Laser pulse induced magnetization reversal in in-plane magnetized spin valves*

18.30 Thomas Metzger
*THz magnetism of antiferromagnets in the non-collinear phase*

# Wednesday June 26

## Session 7: PIPT in 2D materials/strong fields effects

9.00 Isabella Gierz
*Ultrafast dynamics in 2D materials viewed through trARPES eyes*

9.45 Olga Smirnova
*Sub-cycle multidimensional spectroscopy of strongly correlated materials*

12.00 Daniele Fausti
*Cavity control of phase transition in complex quantum materials*

10.45 Coffee Break

11.15 Alexander Osterkorn
*Dynamical phase confinement of excitonic condensates in bilayer systems*

11.30 Andrea Caviglia
*Cavity-driven correlated insulators*

**12.00 PICTURE outside Vereeniging**

## 12.15 Outing (lunch on bus) + Dinner

## Thursday June 27

### Session 8: Photo-induced Dynamical (Floquet) states

9.00 Uli Höfer
*Buildup and dephasing of Floquet-Bloch bands on subcycle time scales*

9.45 Ryo Shimano
*Floquet engineering of 3-dimensional Dirac electron systems*

10.15 Matteo Mitrano
*Transient parity symmetry breaking in a Floquet-Hubbard chain*

10.45 Coffee Break

11.15 Michael Sentef
*Cavity Light-Matter Entanglement through Quantum Fluctuations*

11.45 Thomas Blank
*Diversity of Ultrafast Spin Dynamics Near the Tricritical Point in a Ferrimagnetic Gd/FeCo Multilayer*

12.00 Yuta Murakami
*Possible hidden phases in photo-doped Mott Insulators*

12.15 Lukas Körber
*Self-induced Floquet states generated by nonlinear magnon interactions in a magnetic soliton*

12.30 **Closure/lunch**