



# ECMetAC Days 2023, Kranjska Gora, Slovenia, 27<sup>th</sup>–30<sup>th</sup> November 2023



## Program schedule

### Monday, 27<sup>th</sup> November

12:00 – 18:00 Registration

13:30 – 14:30 Lunch

#### **Workshop (Magdalena Wencka):**

#### ***Innovative Researcher: End-User Approach for Scientific Project Designing***

14:30 – 16:30 Workshop

16:30 – 17:00 Coffee break

17:00 – 18:30 Workshop

19:00 – 20:30 Get together party

### Tuesday, 28<sup>th</sup> November

8:50 – 9:00 Opening (**Magdalena Wencka, Julian Ledieu**)

#### **Session 1** Chairperson: **Magdalena Wencka**

9:00 – 9:30 **Peter Gille** (LMU München)

*Single crystal growth of  $In_7Pd_3$ : A case study*

9:30 – 9:50 **Ireneusz Bugański** (AGH Kraków)

*The structural similarity between Tsai- and Bergman-type phases*

9:50 – 10:10 **Zbigniew Śniadecki** (IMP PAS Poznań)

*The thermodynamic stability of the  $ThMn_{12}$ -type phase in new hard magnetic  $(Ce,Zr,Nd)Fe_{10}Si_2$  alloys*

10:10 – 10:30 **Nazar Zaremba** (MPI CPfS Dresden)

*Searching for new uranium-based arsenides*

10:30 – 11:00 Coffee break

#### **Session 2** Chairperson: **Thomas Seyller**

11:00 – 11:20 **Oksana Karychort** (MPI CPfS Dresden)

*New Samarium Iron Arsenide  $SmFe_5As_3$*

11:20 – 11:40 **Andrzej Krzysztof Musiał** (IMP PAS Poznań)

*Prussian Blue Analog as a precursor for synthesizing of Ni(Fe, Co)-based nanoparticles*

11:40 – 12:00	<b>Woiciech Sas</b> (IP Zagreb) <i>Strategies of synthesizing Prussian blue analogs of mixed composition into reduced dimensionality systems</i>
12:00 – 12:20	<b>Andreja Jelen</b> (JSI Ljubljana) <i>Diverse microstructures of the magnetic high-entropy alloys</i>
12:20 – 12:40	<b>Ahowd Yousef Alfahad</b> (Uni-Liverpool) <i>Surface structure of <math>In_3Ni_2</math> intermetallic compound</i>

12:40 – 14:30 Lunch

<b>Session 3</b>	Chairperson: <b>Pascal Boulet</b>
14:30 – 15:00	<b>Silke Buehler-Paschen</b> (VUT Vienna) <i>Topological semimetals in strongly correlated systems</i>
15:00 – 15:20	<b>Julia Petrović</b> (JSI Ljubljana) <i>Kondo effect in <math>Ce_xLaLuScY</math> (<math>x=0.05-1.0</math>) high-entropy alloys</i>
15:20 – 15:40	<b>Anton Kabaši</b> (US Split) <i>Anisotropic thermal conductivity of hydrogen fuel cell catalyst films</i>
15:40 – 16:00	<b>Monika Kušter</b> (JSI Ljubljana) <i>Effect of Al-Cu-Fe quasicrystal particles on the reinforcement of a polymer-matrix composite: from mechanical to surface properties</i>

16:00 – 16:30 Coffee break

<b>Session 4</b>	Chairperson: <b>Hem Raj Sharma</b>
16:30 – 16:50	<b>Weiliang Ma</b> (IJL Nancy) <i>Stability and electronic properties of two-dimensional oxide quasicrystal approximants</i>
16:50 – 17:10	<b>Vipin Kumar Singh</b> (IJL Nancy) <i>Transformation of two-dimensional quasicrystalline approximants into partially filled honeycomb lattices in reduced <math>SrTiO_3</math> thin films supported on <math>Pt(111)/Al_2O_3(0001)</math></i>
17:10 – 17:30	<b>Thomas Seyller</b> (CUT Chemnitz) <i>Epitaxial CoCrFeNi films for surface investigations</i>

17:30 – 19:00	Poster session (see list at the end of the program)
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19:00 Dinner

20:00 – 22:00	EB meeting
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## Wednesday, 29<sup>th</sup> November

<b>Session 5</b>	Chairperson: <b>Roland Widmer</b>
9:00 – 9:30	<b>Julian Ledieu</b> (IJL Nancy) <i>Rare-earth high entropy alloy thin films</i>
9:30 – 9:50	<b>Wilfried Bajoun Mbajoun</b> (IJL Nancy) <i>C<sub>60</sub> adsorption on the (100) surface of Au-Si-Ho Tsai-type approximant</i>
9:50 – 10:10	<b>Émilie Gaudry</b> (IJL Nancy) <i>Structural, ordering, and magnetic properties of PtNi nanoalloys explored by density functional theory and stability descriptors</i>
10:10 – 10:30	<b>Pavol Priputen</b> (SUT Trnava) <i>Characterization of Co-Fe-Ni-Cu-based multi-principal element alloys</i>

10:30–11:00 Coffee break

<b>Session 6</b>	Chairperson: <b>Marek Mihalkovič</b>
11:00 – 11:20	<b>Janusz Toboła</b> (AGH Kraków) <i>Interplay of electronic structure and electrochemical efficiency in cathode materials for Li- and Na-ion batteries</i>
11:20 – 11:40	<b>Emil Babić</b> (FS UZ Zagreb) <i>Compositionally complex alloys: some insight from photoemission and magnetism</i>
11:40 – 12:00	<b>Federico Mazza</b> (VUT Vienna) <i>Scrutinizing the phonon Kondo effect in intermetallic clathrates</i>
12:00 – 12:20	<b>Marko Kuveždić</b> (FS UZ Zagreb) <i>Two parallel conducting channels in compositionally complex amorphous alloys of early and late transition metals</i>
12:20 – 12:40	<b>Primož Koželj</b> (JSI Ljubljana) <i>Magnetism in a nanostructured single-crystalline Al<sub>28</sub>Co<sub>20</sub>Cr<sub>11</sub>Fe<sub>15</sub>Ni<sub>26</sub> high-entropy alloy</i>

12:40 – 14:30 Lunch

<b>Session 7</b>	Chairperson: <b>Tomasz Toliński</b>
14:30 – 15:00	<b>Mario Novak</b> (FS UZ Zagreb) <i>Temperature-dependent frequency in the quantum oscillations of the Bi<sub>1.1</sub>Sb<sub>0.9</sub>Te<sub>2</sub>S topological insulator</i>
15:00 – 15:20	<b>Yuki Utsumi Boucher</b> (IP Zagreb) <i>Electronic structure of (Co,Ni)<sub>1/3</sub>NbS<sub>2</sub> studied by angle-resolved photoelectron spectroscopy</i>
15:20 – 15:40	<b>Stanislav Vrtnik</b> (JSI Ljubljana) <i>Quantum phase transition in Ce<sub>3</sub>Al studied by muon spin rotation experiment</i>
15:40 – 16:00	<b>Kacper Jakub Pryga</b> (AGH Kraków) <i>Electronic structure and thermoelectric performance of Ni<sub>x</sub>Au<sub>1-x</sub> metallic binary alloy</i>

16:00 – 16:30 Coffee break

<b>Session 8</b>	Chairperson: <b>Vincent Fournée</b>
16:30 – 16:50	<b>Johannes Roth</b> (US Stuttgart) <i>Atomistic simulations of laser-based powder bed fusion</i>
16:50 – 17:10	<b>Jože Luzar</b> (JSI Ljubljana) <i>AlCoFeNiCu<sub>x</sub> (x = 0.6–3.0) and (GaNi)<sub>x</sub>CoCrFe (x = 0.4–1.6) zero-magnetostriction magnetically soft high-entropy alloys for supersilent AC magnetic applications</i>
17:10 – 17:30	<b>Liam Chandler</b> (UL Liverpool) <i>Magnetic properties of quasiperiodic artificial spin-ice tilings fabricated with nanolithography</i>
17:30 – 17:50	<b>Pavol Noga</b> (SUT Trnava) <i>New ToF ERDA experimental setup at the Slovak University of Technology in Bratislava for the characterisation of hydrogen storage and battery materials</i>
17:50 – 18:00	Closing ( <b>Janez Dolinšek, Julian Ledieu</b> )
19:00	Gala dinner

## Thursday, 30<sup>th</sup> November

8:30 – 10:15	Science Board meeting
10:15 – 10:45	Coffee break
10:45 – 12:30	Governing Board meeting and General Assembly
12:30	Lunch

## Poster presentations (Tuesday, 28<sup>th</sup> November, 17:30 – 19:00)

- P1 **Pascal Boulet**  
*The Ce-Au-X (X = Al, Si, Ga, Ge, Sn) ternary phase equilibrium around the quasicrystalline composition*
- P2 **Diana Fabušová**  
*Novel open-framework PdO<sub>2</sub> structures predicted from first-principle calculations*
- P3 **Radovan Bujdák**  
*Study of novel Ni-O phase Ni<sub>2</sub>O<sub>5</sub> from first principles*
- P4 **Emil Tafra**  
*Superconductivity in gold nanostructures with niobium thin film percolating patterns*
- P5 **Josipa Šćurla**  
*Magnetotransport of a single crystal rutile TiO<sub>2</sub>*
- P6 **Matej Kubiš**  
*Experimental simulation of the effect of transmutation helium on structural steels for nuclear applications*
- P7 **Aleksandra Ludwik**  
*Neutron diffraction study of plastic deformation mechanisms in AZ31 magnesium alloy*
- P8 **Roland Widmer**  
*Asymmetric adsorption and bond selectivity on chiral PdGa surfaces*
- P9 **Vincent Fournée**  
*Martensitic phase transition in epitaxial Ni–Mn–Ga magnetic shape memory thin films: a surface science perspective.*
- P10 **Filip Ferenčík**  
*Influence of RF sputtering parameters on hydrogen content in thin PdO films by ToF-ERDA*
- P11 **Holger Schwarz**  
*Growth of crystalline CoCrFeNi high-entropy alloy thin films on LaAlO<sub>3</sub> by magnetron sputtering*
- P12 **Karol Synoradzki**  
*Magnetocaloric properties of single-crystalline Eu<sub>5</sub>In<sub>2</sub>Sb<sub>6</sub>*
- P13 **Tomasz Toliński**  
*Short-range order effects in paramagnetic states of single-crystalline EuIn<sub>2</sub>P<sub>2</sub> and EuIn<sub>2</sub>As<sub>2</sub>*
- P14 **Petar Sačer**  
*The appearance of anomalous Hall effect in EuCd<sub>2</sub>As<sub>2</sub> above ordering temperature*
- P15 **Gaurav Pransu**  
*Investigation of transport and magnetic properties of intercalated TMDs*

- P16 **Naveen Singh Dhani**  
*Crystal structure study of non-centrosymmetric  $\text{EuTGe}_3$  (T=Co, Rh, and Ir) under hydrostatic pressure*
- P17 **Petar Popčević**  
*Electronic transport in intercalated  $2\text{H-NbS}_2$  modulated by magnetic 3d orbitals*
- P18 **Seyed Ashkan Moghadam Ziabari**  
*Synthesis, characterization, and magnetic studies of  $\text{Mn}_2\text{P}$*
- P19 **Zoltan Száraz**  
*Phase separation and recovery in ferritic oxide dispersion strengthened steels*
- P20 **Kaartick Sivakumar**  
*Investigating Ga-Sb-Pd intermetallic compounds as catalysts for the semi-hydrogenation of acetylene*
- P21 **Priyanka Reddy**  
*Surprising magnetism of murunskite*
- P22 **Buesra Mete**  
*V-Ni intermetallic compounds in oxygen evolution reaction*
- P23 **Michael Sannemo Targama**  
*Crystal growth and thermal characterization of intermetallic compounds in the Yb-Au-Sn system*