

29th January 2024

OPENING

14:00 - 14:15 **Anna Dyrdał**

SESSION 1

CHAIR: A. Dyrdał

14:15 - 14:45 **Topological crystalline insulators - from crystal facets with atomic steps to layered heterostructures and nanowires**

Tomasz Story

Institute of Physics, Polish Academy of Sciences, Warsaw, Poland

14:45 - 15:15 **Nontrivial topological phases in superconducting nanostructures**

Tadeusz Domański

Institute of Physics, M. Curie-Skłodowska University, Lublin, Poland

15:15 - 15:30 **Topological insulator and quantum memory**

Levan Chotorlishvili

Department of Physics and Medical Engineering, University of Technology, Rzeszów, Poland

COFFEE BREAK 15:30 - 16:00

SESSION 2

CHAIR: T. Domański

16:00 - 16:30 **Bosonic fluctuations in 2D materials**

Artur Ernst

Johannes Kepler University of Linz, Linz, Austria & Max Planck Institute of Microstructure Physics, Halle, Germany

16:30 - 17:00 **In-plane Magnetic Skyrmion Valve Made of 90° Pinned Magnetic Domain Walls**

Pavel Baláž

FZU-Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic

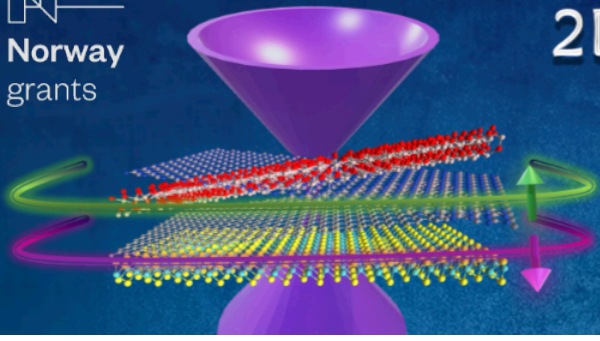
17:00 - 17:30 **Tailoring magnetic properties of Co/Ni bilayers by plasma oxidation**

Piotr Kuświk

Institute of Molecular Physics, Polish Academy of Sciences, Poznań, Poland

POSTER SESSION 17:30 - 19:30

Pavel Baláž, Michał Ingot, Maciej Kalka, Piotr Pigoń, Sakineh Vosoughi-nia, Amir N. Zarezad, Anna Krzyżewska, Kateryna Boboshko, Izabella Wojciechowska, Stefan Stagraczyński, Mirali Jafari



30th January 2024

SESSION 3

CHAIR: M. Przybylski

10:00 - 10:30 A tale of quantum anomalous Hall effect and parity anomaly
Ewelina M. Hankiewicz
University of Würzburg, Am Hubland, Germany

10:30 - 11:00 Two-dimensional materials as a platform for spin-orbit torque memories
Jose Hugo Garcia Aguilar
Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain

11:00 - 11:30 Superconducting spintronics with interfacial spin-orbit coupling and symmetry filtering
César González-Ruano
Universidad Autónoma de Madrid, Spain

COFFEE BREAK 11:30 - 12:00

SESSION 4

CHAIR: A. Ernst

12:00 - 12:30 Spin-orbitronics in chiral crystals
Jagoda Sławińska
Zernike Institute for Advanced Materials, University of Groningen, The Netherlands

12:30 - 13:00 Microscopic Theory of the Spin Hall Effect in Twisted van der Waals Heterostructures
Aires Ferreira
School of Physics, Engineering and Technology and York Centre for Quantum Technologies, University of York, United Kingdom

13:00 - 13:30 Charge density wave-controlled proximity effects in graphene on transition metal dichalcogenides: NbS₂ and TaS₂
Karol Szałowski
Department of Solid State, Faculty of Physics and Applied Informatics, University of Łódź, Poland

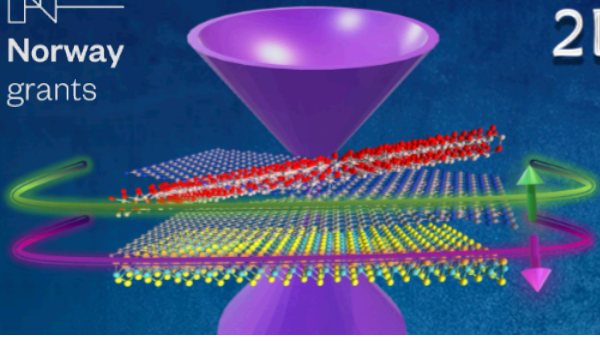
LUNCH 13:30 - 15:00

SESSION 5A 2Dtrionics SESSION

CHAIR: E. Hankiewicz

15:00 - 15:15 Introduction to the 2Dtrionics session
Anna Dyrdał

15:15 - 15:45 Electrically Controlled Crossed Andreev Reflection in Two-Dimensional Antiferromagnets
Alireza Qaiumzadeh
Center for Quantum Spintronics, Norwegian University of Science and Technology, Trondheim, Norway



30th January 2024

- 15:45 - 16:00 **Topological Hall effects due to Skyrmions in Antiferromagnets**
Amir N. Zarezad
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
-
- 16:00 - 16:15 **Magnons in the VX_2 (X=S, Se, Te) monolayer and bilayer TMD systems**
Wojciech Rudziński
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
-
- 16:15 - 16:30 **Magnetic properties of Vanadium-based Transition metal dichalcogenides**
Mirali Jafari
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
-
- 16:30 - 16:45 **Spin-orbit coupling driven phenomena in twisted graphene on transition metal dichalcogenides**
Izabella Wojciechowska
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland

COFFEE BREAK 16:45 - 17:15

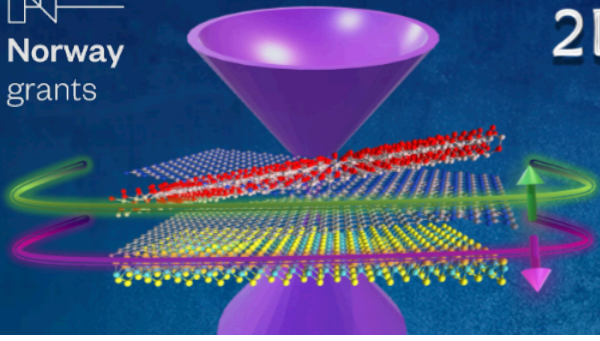
SESSION 5B

2DtronicS SESSION

CHAIR: W. Skowroński

- 17:15 - 17:30 **Magnetism of CrX_3 hexagonal layers win the atomistic spin dynamics**
Stefan Stagraczyński
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
-
- 17:30 - 17:45 **Topological magnon gap engineering in 2D van der Waals CrI_3 ferromagnets**
Verena Brehm
Center for Quantum Spintronics, Norwegian University of Science and Technology, Trondheim, Norway
-
- 17:45 - 18:00 **Non-linear anomalous Hall effect in a 2DEG with different forms of Rashba spin-orbit interaction**
Anna Krzyżewska
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
-
- 18:00 - 18:15 **Bilinear magnetoresistance and planar Hall effect in topological insulators: interplay of scattering on spin-orbital impurities and non-equilibrium spin polarization**
Kateryna Boboshko
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland

CONFERENCE DINNER 18:30 - ...



31st January 2024

SESSION 6

CHAIR: T. Story

- 10:00 - 10:30 **Fermi level control in topological insulators**
Marek Przybylski
Academic Centre for Materials and Nanotechnology & AGH University of Krakow, Poland
- 10:30 - 11:00 **Connection between the semiconductor--superconductor transition and the spin-polarized superconducting phase in the honeycomb lattice**
Agnieszka Cichy
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
- 11:00 - 11:30 **Topological phase transition in 1D quantum spin system**
Piotr Tomczak
IF, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland

COFFEE BREAK 11:30 - 12:00

SESSION 7

CHAIR: P. Kuświk

- 12:00 - 12:30 **Compact localised states in magnonics**
Jarosław W. Kłós
ISQI, Faculty of Physics, Adam Mickiewicz University, Poznań, Poland
- 12:30 - 13:00 **Magnetization dynamics in two-dimensional ferromagnets**
Witold Skowronski
Institute of Electronics, AGH University of Krakow, Kraków, Poland & CIC NanoGUNE, San Sebastián, Spain
- 13:00 - 13:15 **A First-Principles Study of Magnetic Properties and Structural Phase Transitions in Ultra-Thin Fe Films**
Justyna Rychły-Gruszecka
Institute of Molecular Physics, Polish Academy of Sciences, Poznań
- 13:15 - 13:30 **Impact of ion bombardment on ferrimagnetic Tb/Co multilayers using different ion species**
Daniel Kiphart
Institute of Molecular Physics, Polish Academy of Sciences, Poznań

CLOSING 13:30

LUNCH 13:45 - 15:00