



SSM 2024

SOL-SKYMAG 2024



June 24 – 27, 2024

San Sebastian (Gipuzkoa), Spain

PROGRAM

Sol-SkyMag 2024

The 8th International Conference on "Nanomagnetism and Spintronics" (Sol-SkyMag 2024) will be held on **June 24-27, 2024**.

The Sol-SkyMag is an abbreviation from Solitons and Skyrmion Magnetism, but the scope of the conference is essentially wider. The Sol-SkyMag conference serves to assess the status, recent progress, and development in the field of nanomagnetism and spintronics. The conference provides an international forum to discuss recent progress and trends in the field and to identify potential future collaborations. We aim at bringing together the community of leading researchers working the area of nanomagnetism, spin dynamics, spin-transport, etc., and their applications.

The program of the Sol-SkyMag 2024 includes 1 plenary talk and about of 20 invited talks presented by leading experts in the field, regular oral talks, and poster presentations.

Welcome to Sol-SkyMag 2024!

Sol-SkyMag 2024 Chairmen,

Kostyantyn Gusliyenko

Julian Maria Gonzalez Estevez

Organizing Committee

- Kostyantyn Gusliyenko, IKERBASQUE, UPV/EHU, San Sebastian, Spain (Chairman)
- Julian Maria Gonzalez Estevez, UPV/EHU, San Sebastian, Spain (Co-Chairman)
- Ruben Otxoa, DIPC, San Sebastian, Spain
- Anton Gusliyenko, Irura, Gipuzkoa, Spain (Technical support)
- Yuliya Gusliyenko Makoveichuk, Irura, Gipuzkoa, Spain (Secretary & Co-Organizer)

International Advisory Committee

- R. Chantrell, University of York, UK
- O. Chubykalo-Fesenko, Inst. Ciencia de Materiales de Madrid, Spain
- V. Cros, Unité Mixte de Physique CNRS/Thales, France
- J. Gonzalez, Universidad del País Vasco, Spain
- A. Hoffmann, Argonne National Lab, Illinois, USA
- G. Kakazei, University of Porto, Portugal
- A. Serga, University of Kaiserslautern, Germany
- A. Slavin, Oakland University, Michigan, USA
- A. Thiaville, Universite Paris-Sud & CNRS, France
- B. Ivanov, Institute for Magnetism, Ukraine

PROGRAM AT GLANCE 2024

<u>24.06.2024</u> Monday	<u>25.06.2024</u> Tuesday	<u>26.06.2024</u> Wednesday	<u>27.06.2024</u> Thursday
Registration 9.30 – 10.30	Late registration 9.00 – 9.30	Invited and oral talks	Invited and oral talks
Coffee break 10.00 – 10.30	Invited and oral talks 9.30 – 11.15	9.30 – 11.30	9.30 – 11.00
Opening 10.30 – 10.45	Coffee break 11.15 – 11.45	Coffee break 11.30 – 12.00	Conference closing 11.00 – 11.10
Plenary talk 10.45 – 11.30	Invited and oral talks 11.45 – 13.45	Invited and oral talks 12.00 – 13.45	Refreshment 11.10 – 11.50
Invited and oral talks 11.30 – 13.30	Lunch 13.45 – 15.30	Lunch 13.45 – 15.30	Lunch / Free time 13.30 – 17.00
Lunch 13.30 – 15.15	Invited and oral talks 15.30 – 18.15		Meeting at the Catamaran dock, downtown
Invited & oral talks 15.15 – 16.45	Refreshment 18.15 – 18.45	Free time 15.30 – 20.00	17.00 – 17.20
On-site registration 16.45 – 17.15 Welcome party 17.00 – 18.30	Poster Session 18.15 – 19.30	Conference dinner 20.00 – 23.00	Ferry trip to the Bizkaia gulf 17.30 – 18.15

Program of the Sol-SkyMag 2024 conference

June 24 – 27, 2024, San Sebastian, Gipuzkoa, Spain

The Olarain University Residence (1st floor)

The Sol-SkyMag 2024 takes place in the Olarain University residence (1st floor)



The exact address of the Olarain Residence is:

**Calle Ondarreta, 24, 20018 Donostia / San Sebastian
Gipuzkoa province
Spain**

	<u>Monday, June 24, 2024</u>
9:30 – 10:30	Onsite registration, Olarain Residence
10:00 – 10:30	<u>Coffee break</u>
10:30 – 10:45	Conference opening: <i>Kostyantyn Gusliyenko / Julian Gonzalez</i>
10:45 – 11:30	Plenary talk: Ivan Smalyukh, Intl. Inst. for Sustainability with Knotted Chiral Meta Matter/SKCM2, Japan & University of Colorado, USA: “Dynamics of monopoles, skyrmions and hopfions in colloidal magnets”
11:30 – 13:30	Session 1. Magnetic skyrmions I Chair: Axel Hoffmann
11:30 – 12:00	Invited talk: Peter Fischer, Lawrence Berkeley National Laboratory, USA: “ADVANCES IN EXPERIMENTAL STUDIES OF 3D TOPOLOGICAL MAGNETIC SPIN TEXTURES”
12:00 – 12:15	Oral talk: Takao Matsumoto, The University of Tokyo, Japan: “REAL-TIME 4K VISUALIZATION OF THE SWIRLING DYNAMICS OF MAGNETIC SKYRMION”
12:15 – 12:30	Oral talk: Philipp Schwenke, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Germany: “TOWARDS CAVITY-BASED EXCITATION OF MAGNETIZATION DYNAMICS IN A SKYRMION HOST MATERIAL”
12:30 – 12:45	Oral talk: Shun Okumura, The University of Tokyo, Japan: “INSTABILITY OF SKYRMION STRINGS INDUCED BY LONGITUDINAL SPIN CURRENTS”
12:45 – 13:00	Oral talk: Xianggang Qiu, Chinese Academy of Sciences, China: “Visualization of skyrmion-superconducting vortex pairs in a chiral magnet-superconductor heterostructure”
13:00 – 13:15	Oral talk: Mykola Tasinkevych, University of Lisboa, Portugal: “COLLECTIVE VARIABLE APPROACH FOR THE DYNAMICS OF LIQUID CRYSTAL SKYRMIONS”
13:15 – 13:30	Oral talk: Elena Vedmedenko, University of Hamburg, Germany: “RECENT PROGRESS IN STUDIES OF INTERLAYER DZYALOSHINSKII-MORIYA INTERACTIONS”

13:30 – 15:15	<u>Lunch break</u>
15:15 – 17:00	Session 2. Magnetic hopfions, vortices and domain walls Chair: Kostyantyn Gusliyenko
15:15 – 15:45	Invited talk: Marcus Garst , Inst. of Theoretical Solid State Physics & Inst. for Quantum Materials and Technology / Karlsruhe Inst. of Technology, Germany: “CONSERVATION LAWS AND DYNAMICS OF MAGNETIC HOPFIONS”
15:45 – 16:15	Invited talk: Gleb Kakazei , University of Porto, Portugal: “Gyrotropic dynamics of radial magnetic vortex”
16:15 – 16:30	Oral talk: Kotaro Shimizu , The University of Tokyo, Japan: “CURRENT-INDUCED DYNAMICS OF MAGNETIC HEDGEHOG LATTICES”
16:30 – 16:45	Oral talk: Mingran Xu , Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland: “BRILLOUIN LIGHT SCATTERING STUDY OF NONRECIPROCAL SPIN DYNAMICS IN 3D FERROMAGNETIC CHIRAL TUBES”
16:45 – 17:15	Onsite registration
17:00 – 18:30	<u>Welcome party</u>

	<u>Tuesday, June 25, 2024</u>
9:00 – 9:30	Late registration
9:30 – 11:15	Session 3. Magnetic skyrmions II Chair: Peter Fischer
9:30 – 10:00	Invited talk: Denys Makarov , Helmholtz-Zentrum Dresden-Rossendorf, Germany: “Magnetic solitons in 3D soft magnetic wireframe architectures”
10:00 – 10:30	Invited talk: Oleg Tretiakov , Univ. of New South Wales, Australia: “TOPOTRONICS WITH MAGNETIC TOPOLOGICAL MATERIALS”
10:30 – 10:45	Oral talk: Jan Masell , Karlsruhe Inst. of Technology (KIT), Germany: “HYBRID ANTISKYRMIONS AND THE ORIENTATION OF STRIPES IN S 4 - AND D 2D -SYMMETRIC MAGNETS”

10:45 – 11:00	Oral talk: Julia Kharlan, Adam Mickiewicz University, Poland: “CREATION OF THE SKYRMIONS BY THE STRAY FIELDS PRODUCED BY SUPERCONDUCTOR RING”
11:00 – 11:15	Oral talk: Kauser Zulfiqar, Max Planck Institute for the Structure and Dynamics of Matter, Germany: “SPIN WAVE DISPERSION IN A SKYRMION CHAIN”
11:15 – 11:45	<u>Coffee / tea break</u>
11:45 – 13:45	Session 4. Nanomagnetism Chair: Farkhad Aliev
11:45 – 12:15	Invited talk: Riccardo Hertel, Université de Strasbourg, CNRS, Institut de Physique et Chimie des Matériaux de Strasbourg, France: “High-Frequency Magnetization Dynamics in 3D Interconnected Nanowire Arrays”
12:15 – 12:45	Invited talk: Yongbing Xu, Nanjing University, China: “Manipulation of spin ordering in 2D magnets”
12:45 – 13:00	Oral talk: Alessandro Bombardi, Diamond Light Source LTD, UK: “SPONTANEOUS MAGNETIC CHIRALITY REVERSAL AND ORDERING PHENOMENA IN EUAL”
13:00 – 13:15	Oral talk: Jacek Cwik, Institute of Low Temperature and Structure Research, Poland: “HIGH-FIELD MAGNETIC AND MAGNETOCALORIC PROPERTIES IN LOW TEMPERATURE ORDERED LAVES PHASE COMPOUNDS”
13:15 – 13:30	Oral talk: Dariia Popadiuk, Royal Institute of Technology, Sweden: “Exploring magnetostatic and magnetodynamic characteristics in superconductor-ferromagnet-superconductor multilayers”
13:30 – 13:45	Oral talk: Carlos Garcia, Univ. Tecnica Federico Santa Maria, Chile: “H ⁺ and He ⁺ irradiation induced selective oxygen diffusion for oxide/metal/oxide interfaces heterostructures fabrication”
13:45 – 15:30	<u>Lunch break</u>
15:30 – 18:15	Session 5. Magnetization dynamics, spin waves and magnonics Chair: Gleb Kakazei

15:30 – 16:00	Invited talk: Alexander Serga , Kaiserslautern University, Germany: “MAGNETIZATION, MAGNON FREQUENCY AND DIRECTION OF SUPERCURRENTS IN OPTICALLY HEATED YTTRIUM IRON GARNET FILMS”
16:00 – 16:30	Invited talk: Shuichi Murakami , Tokyo Institute of Technology, Japan: “Theory of angular momentum transfer between phonons and magnons”
16:30 – 17:00	Invited talk: Farkhad Aliev , Universidad Autonoma de Madrid, Spain: “CONFINED SPIN DYNAMICS: FROM SENSING EXCHANGE COUPLING TO APPLICATION IN ARTIFICIAL NEURON”
17:00 – 17:15	Oral talk: Sebastian Knauer , University of Vienna, Austria: “ALL-ELECTRICAL PROPAGATING SPIN-WAVE SPECTROSCOPY IN 100 nm-THIN YTTRIUM-IRON-GARNET AT MILLIKELVIN TEMPERATURES”
17:15 – 17:30	Oral talk: Krzysztof Szulc , Adam Mickiewicz University, Poland: “ROTATING SPIN-WAVE MODES IN NANORODS”
17:30 – 17:45	Oral talk: Artem Litvinenko , University of Gothenburg, Sweden: “FPGA-CONTROLLED SPIN WAVE ISING MACHINE”
17:45 – 18:00	Oral talk: Mateusz Gołębiewski , Adam Mickiewicz University, Poland: “MAGNETIC FIELD ANGLE-DEPENDENT LOCALIZATION OF FMR SPIN WAVE MODES IN 3D NANOARCHITECTURES”
18:00 – 18:15	Oral talk: Kyongmo An , Institute of Materials (IMX), École Polytechnique Fédérale de Lausanne, Switzerland: “EMERGENT NONLINEAR MODES IN COHERENT MAGNON CIRCUITS DETECTED AT ULTRAHIGH FREQUENCY RESOLUTION”
18:15 – 18:45	<u>Refreshment</u>
18:15 – 19:30	<u>Poster session</u> (nanoscale magnetism, magnetization dynamics, skyrmions, vortices and domain walls, spintronics & spin orbit effects)

	<u>Wednesday, June 26, 2024</u>
9:30 – 11:30	Session 6. Magnetotransport, spin transport and spin-orbit effects Chair: Yuriy Mokrousov

9:30 – 10:00	Invited talk: Christopher Marrows , University of Leeds, United Kingdom: “SPIN CURRENT-DRIVEN MOTION OF MAGNETISATION TEXTURES: SPINWAVES AND SPIN SEEBECK CURRENTS”
10:00 – 10:30	Invited talk: Vincent Cros , Laboratoire Albert Fert, CNRS, Thales group, Université Paris-Saclay, France: “Tuning Interfacial Spin-Orbit Effects through orbital hybridization at Co Al Interface”
10:30 – 11:00	Invited talk: Ilya Krivorotov , University of California, USA: “SELF-GENERATED SPIN-ORBIT TORQUES IN MAGNETIC CONDUCTORS”
11:00 – 11:15	Oral talk: Piotr Majek , Adam Mickiewicz University, Poland: “SPIN-SELECTIVE TRANSPORT IN A CORRELATED DOUBLE QUANTUM DOT-MAJORANA WIRE SYSTEM”
11:15 – 11:30	Oral talk: Piotr Trocha , Adam Mickiewicz University, Poznań, Poland: “MAGNETIC FIELD AND RENORMALIZATION EFFECTS IN THERMOELECTRIC TRANSPORT THROUGH A QUANTUM DOT HYBRID COUPLED TO FERROMAGNETIC METAL AND TOPOLOGICAL INSULATOR”
11:30 – 12:00	<u><i>Coffee break</i></u>
12:00 – 13:45	Session 7. Ferrimagnets and Antiferromagnets Chair: Oleg Tretiakov
12:00 – 12:30	Invited talk: Axel Hoffmann , Univ. of Illinois Urbana-Champaign, USA: “MAGNETIC SKYRMIONS IN SYNTHETIC FERRI- AND ANTIFERROMAGNETS”
12:30 – 13:00	Invited talk: Yuriy Mokrousov , Johannes Gutenberg-University Mainz, Germany: “Spin and orbital magnetism in Antiferromagnets by light”
13:00 – 13:15	Oral talk: Sergei Bunyaev , University of Porto, Portugal: “HIGH FREQUENCY MICROWAVE RESPONSE OF SYNTHETIC ANTIFERROMAGNETS IN LOW MAGNETIC FIELDS”
13:15 – 13:30	Oral talk: Eudes Gomes da Silva , University of Iowa, USA: “FERROMAGNETIC AND ANTIFERROMAGNETIC MAGNONS IN Cr ₂ C MXENES”

13:30 – 13:45	Oral talk: Javier Velez , University of the Basque Country, Spain: “Relativistic Dynamics of Antiferromagnetic Domain Walls: Route to Chaos”
13:45 – 15:30	<u>Lunch break</u>
15:30 – 20:00	Free time
20:00 – 23:00	<u>Conference dinner</u>

	<u>Thursday, June 27, 2024</u>
9:30 – 11:15	Session 8. Fundamentals of magnetism Chair: Markus Garst
9:30 – 10:00	Invited talk: Gerrit Bauer , Kavli Institute for Theoretical Sciences, University of the Chinese Academy of Sciences, China: “GATED SPIN COMMUNITIES”
10:00 – 10:30	Invited talk: Gen Tatara , RIKEN Center for Emergent Matter Science (CEMS), Japan “Theory of "spin current" generation and propagation without talking about spin current”
10:30 – 10:45	Oral talk: Artem Bondarenko , Delft University of Technology, The Netherlands: “Electrically controlled 2D magnon optics”
10:45 – 11:00	Oral talk: Sebastián A. Díaz , University of Konstanz, Germany: “MAGNONIC ENTANGLEMENT IN NONCOLLINEAR TEXTURES”
11:00 – 11:50	<u>Conference closing / Last refreshment</u>
13:30 – 17:00	<u>Lunch break / Free time</u>
17:00 – 17:20	Meeting at the Catamaran dock, downtown, Paseo Kaiko
17:30 – 18:15	Conference event: Ferry trip to the Bizkaia gulf

POSTER PRESENTATIONS

Poster Session (18:15 – 19:30, June 25, 2024): all topics

#	NAME AND SURNAME	TITLE
1	EOIN DOLAN	"SWITCHING SPIN-CHARGE INTERCONVERSION MECHANISMS VIA BACK-GATE VOLTAGE IN A GRAPHENE/RES 2 VAN DER WAALS HETEROSTRUCTURE"
2	SHASHANK SHEKHAR	"NONRECIPROCAL SPIN WAVE IN COFEB/MGO HETEROSTRUCTURE"
3	EMIL SIUDA	"NAGAOKA FERROMAGNETISM SIGNATURES IN THE THERMOELECTRIC PROPERTIES OF HYBRID QUANTUM DOT PLAQUETE"
4	MIGUEL ANGEL ESCUDERO GARCIA	"ELECTRICAL AND DYNAMIC MAGNETIC PROPERTIES IN TRILAYERS PY/CU/PY WITH STRIP PATTERNED"
5	ENRIQUE FRANCISCO PINZÓN ESCOBAR	"MAGNETOELECTRONIC PROPERTIES OF AMORPHOUS CO-RICH TRILAYERS"
6	MD REJAUL KARIM	"OBSERVATION OF ALL SPIN POLARIZATION IN POLYCRYSTALLINE IRMN ₃ /PERMALLOY BILAYER"
7	MATTHIAS SCHWEIZER	"THERMALLY INDUCED DEMAGNETIZING FIELDS: EFFECTIVE POTENTIALS FOR MAGNON BOSE-EINSTEIN CONDENSATES"
8	RITESH DAS	"SPIN-WAVE DISPERSION IN THE VAN DER WAALS ANTIFERROMAGNET NIPS ₃ "
9	NOZOMI SOYA	"MAGNETIZATION-INDEPENDENT SPIN HALL EFFECT IN FERROMAGNET"
10	SHILPA SAMDAMI	"SPIN-PUMPING AND SPIN TRANSPORT IN NiFe/Pt/Co ASYMMETRIC TRILAYER"
11	ADAM KRYSZTOFIK	"MAGNETIC PROPERTIES OF YIG FLAKES"

Tourist info:

Plan of the city: <https://www.sansebastianturismoa.eus/images/ssturismo/pdf/san-sebastian-tourist-map.pdf?v=20221018>

Guide of the city: <https://www.sansebastianturismoa.eus/images/documentos/san-sebastian-holiday-guide.pdf?v=11>

Dictionary:

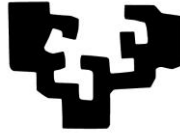
[https://www.donostia.eus/home.nsf/0/DD2847C278193E83C1258504003D0343/\\$file/HIZTEGI_TXIKI_A_2020.pdf](https://www.donostia.eus/home.nsf/0/DD2847C278193E83C1258504003D0343/$file/HIZTEGI_TXIKI_A_2020.pdf)

Other flyers: <https://www.sansebastianturismoa.eus/en/come/maps>

For Notes:

Organizers and sponsors:

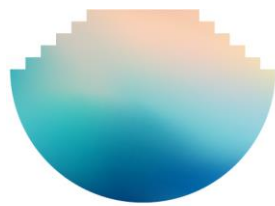
eman ta zabal zazu



Universidad
del País Vasco

Euskal Herriko
Unibertsitatea

ikerbasque
Basque Foundation for Science



**Donostia
San Sebastián**