



MAGNET2024

Conference Program

VIII Italian Conference of Magnetism

7-9 February 2024

Sala Napoleonica dell'Accademia di Brera

Milano - Italy



Istituto Lombardo
Accademia di Scienze e Lettere



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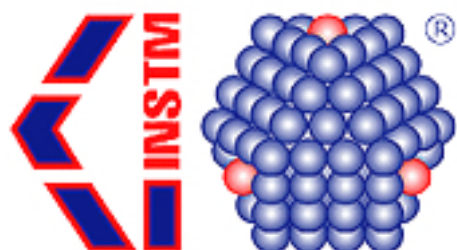
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Magnetochemistry - An Open Access Journal by MDPI (<https://www.mdpi.com/journal/magnetochemistry>)



Spin Applicazioni Magnetiche (<https://www.spinmag.it/>)



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Wednesday, February 7th

09:00 Registration

09:30 Opening address

Keynote Lecture 1 (Chair: Paola Tiberto)

09:45 **Pasquina Marzola**, Università di Verona

Theranostic Applications of Magnetic Nanoparticles: Where Do We Stand?

Oral Session 1 – Magnetism in Medicine and Biology (Chair: Lucia Del Bianco)

10:15 **Gabriele Barrera**, INRIM (Torino)

Factors Affecting Magnetic Particle Imaging: Frequency-Sustained Hysteresys and Dipole-Dipole Interactions

10:30 **Daniele Marra**, Università di Napoli Federico II

Magnetophoretic Biosensors Based on Core-Satellite Magnetic Particles for Rapid Monitoring of the Mycotoxin Deoxynivalenol (DON)

10:45 **Milad Takhsha**, IMEM-CNR (Parma)

Magnetic Shape-Memory Heuslers Turn to Bio

11:00 **Luca Pellegrino**, SPIN-CNR (Genova)

A Hybrid Superconductor/Nanomechanical Magnetic Field Detector for Biomagnetism

11:15 Coffee Break

Oral Session 2 – Nanomagnetism, Nanoparticles and Nanostructures (Chair: Claudio Sangregorio)

11:45 **Miran Baričić**, ITODYS-CNRS (Paris), Università degli Studi Roma Tre

CoO Nanoaggregates Polyol Synthesis: Tuning Néel Temperature and Clearing the Magnetic Properties from Ambiguities

12:00 **Alessio Gabbani**, Università di Firenze, ICCOM-CNR (Firenze)

Magnetoplasmonics beyond Metals: Ultrahigh Sensing Performance in Transparent Conductive Oxide Nanocrystals

12:15 **Beatrice Muzzi**, ICCOM-CNR (Firenze), Università di Firenze

Exchange Bias in Metal-Doped Single-phase Ferrites Induced by Defect Engineering of Core@Shell Nanoparticles

12:30 Lunch

Wednesday, February 7th

Keynote Lecture 2 (Chair: César De Julián Fernández)

14:00 **Nicolò Maccaferri**, Umeå University
Magnetoplasmonics in Confined Geometries: Current Challenges and Future Opportunities

Oral Session 3 – Spintronics (Chair: Riccardo Bertacco)

14:30 **Alberto Brambilla**, Politecnico di Milano
Hybrid Spin Interfaces for Organic Antiferromagnetic Spintronics

14:45 **Michaela Kuepferling**, INRIM (Torino)
Influence of the Spin Hall Angle on the Power Consumption of a SMR Field Sensor

15:00 **Roberto Mantovan**, IMM-CNR (Agrate Brianza)
Spin-Charge conversion in Large-Area Topological Insulators Grown by Metal-Organic Chemical Vapour Deposition

15:15 **Vito Puliafito**, Politecnico di Bari
Oscillator Ising Machines Simulated for Large Max-Cut Problems

15:30 Poster Session 1 + Coffee Break

Oral Session 4 – Molecular Magnetism (Chair: Ferdinando Borsa)

16:45 **Claudio Bonizzoni**, Università di Modena e Reggio Emilia, NANO-CNR (Modena)
Quantum Sensing of Magnetic Fields with Molecular Spins

17:00 **Simone Chicco**, Università di Parma, INSTM (Parma)
Proof-of-Concept Quantum Simulator Based on Molecular Spin Qubits

17:15 **Niccolò Giaconi**, Università di Firenze, INSTM (Firenze)
Nanostructuring and Spin Selective Electron Transport Properties of Enantiopure Helicenes Monolayer

17:30 **Giulia Serrano**, Università di Firenze
Magnetic Features of Molecules on Superconductors

17:45 Gruppo Infrastrutture AlMagn

18:30 Closing

Thursday, February 8th

Plenary Lecture 1 (Chair: Franca Albertini)

9:00 **Oliver Gutfleisch**, Technische Universität Darmstadt
The Role of Magnetic Materials in the Energy Transition

Oral Session 5 – Thin Films and Magnonics (Chair: Giovanni Ausanio)

9:45 **Ilaria Bergenti**, ISMN-CNR (Bologna)
Tuning the Blocking Temperature of CoO Antiferromagnetic Films with Organic Molecules

10:00 **Maria Cocconcelli**, Politecnico di Milano
Biasing Magnonic Devices via Integrated Micro-magnets

10:15 **Alberto Ghirri**, NANO-CNR (Modena)
Ultrastrong Magnon-Phonon Coupling in Planar Superconductor-Ferrimagnet Structures

10:30 **Gianluca Gubbiotti**, IOM-CNR (Perugia)
Observation of Spin-Wave Moirè Edge and Cavity Modes in Twisted Magnetic Lattices

10:45 **Federico Motti**, ETH Zürich and Paul Scherrer Institute, Villigen
Effect of Periodicity on the Magnetic Anisotropy in Spinel Oxide Superlattices

11:00 Coffee Break

Keynote Lecture 3 (Chair: Lorenzo Sorace)

11:30 **Elena Garlatti**, Università di Parma, INSTM & INFN (Parma)
Molecular Nanomagnets: A Promising Tool for Quantum Information Processing

Keynote Lecture 4 (Chair: Lorenzo Sorace)

14:00 **Luis E. Hueso**, CIC nanoGUNE BRTA (San Sebastian), IKERBASQUE (Bilbao)
Spin-Orbit Coupling: From Logic Devices to Twisted Layers

12:30 Lunch

Thursday, February 8th

Plenary Lecture 2 (Chair: Gaspare Varvaro)

14:15 **Denis Makarov**, Helmholtz-Zentrum Dresden-Rossendorf
Curvilinear and 3D Magnetism: Current Research and Technology Perspectives

Oral Session 6 – Sustainable Magnets, Applications and Superconductivity (Chairs: Attilio Rigamonti and Samuele Sanna)

15:00 **Matteo Casadei**, Università di Bologna, IMEM-CNR (Parma)
Toward Gap Magnets: Ge, Re and Cr Doping in the Fe_5SiB_2 Compound

15:15 **Sara Laureti**, ISM-CNR, nM²-Lab (Roma)
Interface Control of Co/Ni Synthetic Antiferromagnets Heterostructures on Polymer Tapes: Towards Sustainable Spintronics

15:30 **Nicola Pellizzi**, Politecnico di Milano
Direct Laser Patterning of Ni_2MnGa Films for Magnetocaloric Applications

15:45 Poster Session 2 + Coffee Break

17:00 Assemblea AIMagn

18:30 Closing

20:15 Social Dinner
Ristorante "El Brellin", Vicolo dei Lavandai, Alzaia Naviglio Grande, 14 (Milano)
The location is a 6 minutes walk from Porta Genova station of M2 subway (green line)

Friday, February 9th

Plenary Lecture 3 (Chair: Roberta Sessoli)

9:00 **Silvia Picozzi**, SPIN-CNR (Chieti)
Multiferroicity and Magnetoelectricity in the Flatland

Keynote Lecture 5 (Chair: Roberta Sessoli)

9:45 **Luigi Paolasini**, ESRF (Grenoble)
Magnetic Diffraction by Polarized X-Rays

Oral Session 7 – Fundamental Magnetism and Theoretical Models (Chair: Carlo Gatti)

10:15 **Alessandro De Vita**, IOM-CNR, Università di Milano, Fritz Habel Institute
Relevance of Thermal Fluctuations in Fe(100)-p(1x1)O in Optically-Induced Ultrafast Demagnetization

10:30 **Samuele Sanna**, Università di Bologna
Entangled Spin-Orbital Jahn-Teller Bipolaron in the Electron-Doped $Ba_2Na_{1-x}Ca_xOsO_6$ Dirac-Mott Insulator

10:45 **Jakob Baumsteiger**, University of Vienna, Università di Bologna
Exploring Noncollinear Magnetic Energy Landscapes with Bayesian Optimization

11:00 **Alessandro Chiesa**, Università di Parma
Chirality-Induced Spin Selectivity in Electron Donor-Acceptor Molecules: A Resource for Quantum Technologies

11:15 Coffee Break

Oral Session 8 – Magnetic Materials and their Applications (Chair: Davide Peddis)

11:45 **Pierfrancesco Maltoni**, Uppsala University
From Ferrite Nanostructures to Sintered Dense Permanent Magnets

12:00 **Federico Maspero**, Politecnico di Milano
Optimization and Patterning of Sm-Co Thick Films for the Integration in MEMS Devices

12:15 **Federico Spizzo**, Università di Ferrara and INFN Ferrara
Functionalization of Spider Silk Threads with Magnetorestrictive FeCo Coating

12:30 Prizes

13:00 Closing Remarks