



SILS Conference 2023

Rome, August 30th - September 1st



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SILS 2023

Annual Meeting of the
Italian Synchrotron Radiation Society

Rome 30 August-1 September 2023

Sapienza University

Programme Booklet



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Programme

Wednesday, August 30, 2023

12:30	14:00	Registration			
14:00	14:30	Welcome & Introduction			
14:30	15:15	Plenary Lecture 1 Chairperson: A. Di Cicco <i>Synchrotron measurements on planet-forming materials at high pressure and high temperature: the key to understanding planetary diversity.</i> D. Antonangeli (Sorbonne Université) Room: Aula La Ginestra			
15:15	15:30	SILS Awards Room: Aula La Ginestra			
15:30	16:00	Coffee Break			
16:00	18:45	MS2 - Advanced accelerator-driven radiation sources and their applications (XFEL- IR) Chairperson: E. Chiadroni Room: Aula La Ginestra		MS5 - Equilibrium and dynamic properties of surfaces and nanostructures Chairperson: G. Panaccione Room: Aula A	
		16:00	KN1: A. Marinelli (SLAC, USA) <i>Free-electron lasers: state of the art and opportunities for advanced accelerators</i>	16:00	KN1: M. dell'Angela (CNR-IOM) <i>Charge and Exciton Dynamics in Hybrid Materials Probed by Time Resolved Soft X-Ray Spectroscopies at ELETTRA Synchrotron</i>
		16:40	O1: A. Curcio (INFN-LNF) <i>A compact plasma-based betatron X-ray source: the EuPRAXIA Advanced Photon Sources (EuAPS) project</i>	16:40	O1: S. Iacobucci (CNR-ISM) <i>Sub-femtosecond electron dynamics in ZnO studied by Resonant Photoemission Spectroscopy</i>
		17:00	O2: F. Novelli (Ruhr University Bochum) <i>Terahertz-driven dynamics in liquid water</i>	17:00	O2: F. Tavani (Sapienza University of Rome) <i>Investigating the water/MgO and water/MgCl₂ interfaces through Ambient Pressure soft X-ray Absorption Spectroscopy</i>
		17:20	O3: Y. Uemura (European XFEL) <i>Developments of X-ray absorption spectroscopies at FXE instrument</i>	17:20	O3: S. Mauri (CNR-IOM) <i>Inverse ball milled CeO₂/CuO catalyst for partial methane oxidation: a combined in situ DRIFT and operando NEXAFS study</i>
		17:40	O4: F. Stellato (University of Rome Tor Vergata) <i>The EuAPS betatron photon beam: ultra-bright light pulses for imaging and spectroscopy</i>	17:40	O4: L. Petaccia (Elettra Synchrotron) <i>Anomalies at the Dirac point in pristine and substitutional doped graphene</i>
		18:00	O5: L. Mosesso (Sapienza University of Rome) <i>The Sabina Terahertz/Infrared beamline at SPARC-Lab facility</i>	18:00	O5: S. Stolfi (University of Pavia) <i>Single-Atoms on Crystalline Carbon Nitrides for Selective C-H Photooxidation</i>
		18:15	O6: D. Fainozzi (Elettra Synchrotron) <i>Towards hard X-ray transient grating spectroscopy</i>	18:15	O6: G. M. Pierantozzi (CNR-IOM) <i>Relevance of thermal fluctuations in Fe(100)-p(1x1)O in optically-induced ultrafast demagnetization</i>
		18:30	O7: E. Spurio (UNIMORE) <i>Structure and electronic properties of excited states in cerium oxide: recent results obtained at the FXE instrument of Eu-XFEL</i>	18:30	O7: L. Schio (CNR-IOM) <i>Unique adsorption configuration of M(II)-tetraphenylporphyrins (M=Co,Ni,Cu,Zn) on the r-TiO₂(110) surface</i>
18:45	Welcome Party				

Thursday, August 31, 2023 - Morning

9:00	9:45	Plenary Lecture 2 <i>Terahertz nonlinear electrodynamics of Dirac materials</i> A. Perucchi (Elettra Sincrotrone Trieste)		Chairperson: S. Billinge Room: Aula La Ginestra	
9:45	10:00	Commercial Presentation <i>Innovative tools for Beamlines and advanced X-ray Instrumentation</i> F. Palmacci (Quantum Design)			
10:00	10:30	Coffee Break			
10:30	12:50	MS6 - Advanced data analysis methodologies Chairperson: A. Di Cicco Room: Aula La Ginestra		MS1 - 4D-microscopy and tomography Chairpersons: A. Bravin, C.Giannini Room: Aula A	
		10:30	KN1: S. Billinge (Columbia University) <i>Handling heterogeneity: Approaches to separate signals using multiple spaces</i>	10:30	KN1: M. Stampanoni (ETH Zurich and Paul Scherrer Institut) <i>Chasing evolving processes: the challenges of dynamic tomographic X-ray microscopy</i>
		11:00	KN2: F. Iesari (Aichi Synchrotron) <i>Advances in modelling X-ray absorption spectroscopy data using reverse Monte Carlo</i>	11:00	KN2: A. Olivo (UCL) <i>Multi-modal x-ray imaging and microscopy with intensity-modulated beams - opportunities for dynamic implementations</i>
		11:30	O1: N. Hara (University of Camerino) <i>Local structure of solid and liquid Au as a function of temperature by EXAFS</i>	11:30	O1: G. Campi (CNR-IC) <i>Complex materials as seen by high resolution X-ray synchrotron techniques</i>
		11:50	O2: R. Caliandro (CNR-IC) <i>Structural characterization of flexible proteins by SAXS complemented with advanced computational modelling</i>	11:50	O2: D. Altamura (CNR-IC) <i>Laboratory-based X-ray Scanning Microscopy with scattering/absorption contrast for structural characterization in medicine and nanotechnology, supported by Synchrotron data</i>
		12:10	O3: N. Corriero (CNR-IC) <i>CrystalMELA: Advancing Crystallographic Structure Solution Using Machine Learning and Powder Diffraction Data</i>	12:10	O3: S. Di Mitri (Elettra Synchrotron) <i>Transverse deflecting cavities for short x-ray pulses at a diffraction-limited storage ring light source: an accelerator-plus-beamlines perspective</i>
		12:30	O4: M. Abdolrahim (University of Roma Tre) <i>XAS investigations related to the Magnetic response of Magnetic Zeolite Synthesis from Polluted Mt. Etna Volcanic ash</i>	12:30	O4: L. Massimi (CNR-Nanotec) <i>X-ray dynamic beam tracking combined with microfluidic to investigate feasibility of contrast-enhanced refraction and dark-field angiography</i>
12:50	14:00	Lunch & poster session			

		MS3 - Multi scale approach for the study of functional materials		MS7- Extreme condition science	
		Chairperson: E. Borfecchia		Chairperson: G. Giuli	
		Room: Aula La Ginestra		Room: Aula A	
14:00	16:15	14:00	KN1: P. Abdala (ETH Zurich) <i>Probing the structure of solid catalysts across scales and their dynamics using X-rays</i>	14:00	KN1: Emin Mijit (University of Camerino) <i>Polyamorphism in GeSe₂ glass under ultra-high pressures studied by extended x-ray absorption fine structure</i>
		14:30	O1: F. Tajoli (University of Padova) <i>Direct insight on crystallization pathways by in situ time-resolved SAXS/WAXS: role of space confinement</i>	14:30	O1: S. Boccato (Sorbonne University) <i>Exploring liquids under extreme conditions of pressure and temperature with XAS and XRD</i>
		14:50	O2: A. Tofoni (Sapienza University of Rome) <i>Direct molecular oxygen-based oxidation of methane to methanol over open Fe(II) sites in a metal-organic framework under mild conditions: a combined operando XAS, XES, RIXS and PXRD characterization</i>	14:50	O2: A. Colombo (ETH Zürich) <i>Femtosecond snapshots of atomic clusters: a new eye on nanomatter and its interaction with light</i>
		15:10	O3: D. Salusso (ESRF Synchrotron) <i>Ni/Pt-CeO₂ in-situ DRIFT/XAS: accessing metal, Ce³⁺ and coordination species kinetics in one measurement</i>	15:10	O3: G. Merzoni (Politecnico of Milan) <i>First high-resolution pump probe RIXS on prototypical charge transfer insulators at the EuXFEL</i>
		15:30	O4: M. Maisuradze (University of Bologna) <i>Investigation of charge state heterogeneity inside MnHCF cathode material by synchrotron-based transmission soft X-ray microscopy</i>	15:30	O4: C. Fasolato (CNR-ISC) <i>Ultrafast plasmon dynamics in an insulating crystal triggered by intense extreme UV free electron laser pulses</i>
		15:45	O5: P. Aich (University of Roma Tre) <i>Fluorination-Induced Asymmetry in Vacancy-Ordered Brownmillerite: Route to Multiferroic Behavior</i>	15:45	O5: B. D'Alò (Sapienza University of Rome) <i>Evidence of a Two-Step Pressure-Driven Metallization in Transition Metal Dichalcogenides by Far-Infrared Spectroscopy</i>
		16:00	O6: B. Garetto (University of Turin) <i>Understanding C-H activation in light alkanes over Cu-MOR zeolites by advanced XAS analysis during temperature-programmed reduction</i>	16:00	O6: G. Greco (Sapienza University of Rome) <i>REALSEI: Operando chemical space- and time-resolved quantification of solid electrolyte interphase in hard carbon anode for sustainable sodium ion batteries</i>
16:15	16:45	Coffee Break			

Thursday, August 31, 2023 - Afternoon

		MS8 - Open Session		MS4 - Synchrotron and XFEL radiation for life-science	
		Chairpersons: C. Giannini, A. Bravin		Chairperson: A. Cedola	
		Room: Aula La Ginestra		Room: Aula A	
16:45	18:30	16:45	O1: Toshihiro Okajima (Aichi Synchrotron) <i>Industrial Applications of AichiSR</i>	16:45	KN1: E. Pereiro (ALBA Synchrotron) <i>Exploring the native cellular environment with soft X-ray microscopy</i>
		17:15	O2: F. Offi (University of Roma Tre) <i>Identifying chemical environments and hydrogen-related density of states in metal hydrides</i>	17:10	O1: F. Rossi (University of Bologna) <i>Shedding Light on Osteosarcoma Cell Differentiation: Impact on Biomineralization and Mitochondria Morphology</i>
		17:30	O3: A. Moliterni (CNR-IC) <i>Unveiling the crystal structure of novel hybrid organic-inorganic perovskites by synchrotron X-ray powder/single crystal diffraction data</i>	17:25	O2: F. Bardelli (CNR-Nanotec) <i>The composition of asbestos bodies in human lungs</i>
		17:45	O4: B. Pedretti (Politecnico of Milan) <i>Multi-element X-ray Detectors for High Count-Rate Spectroscopy</i>	17:40	O3: A. Ilari (CNR- IBPM) <i>A fragment-based approach targeting trypanothione reductase for the development of new antileishmanial agents</i>
		18:00	O5: Z. Ebrahimpour (INFN-LNF) <i>EuPRAXIA@SPARC_LAB FELs for soft x-ray spectroscopy and imaging</i>	17:55	O4: F. Palermo (CNR-Nanotec) <i>Multilevel X-ray imaging approach to assess the sequential evolution of multi-organ damage in neurodegenerative diseases</i>
		18:15	O7: I. Carlomagno (Elettra Synchrotron) <i>The XRF beamline at Elettra: far beyond microscopy</i>	18:10	O5: G. Tromba (Elettra Synchrotron) <i>The new hard X-ray imaging beamline for the Life Sciences at Elettra</i>
18:30	19:30	SILS members assembly			
20:00		Social Dinner			

Friday, September 1, 2023

9:00	9:45	Plenary Lecture 3 Chairperson: R. Caliendo <i>New challenges in structural biology: Catching the complexity of dynamic nanomachines</i> A. Pastore (King's College) Room: Aula La Ginestra		
9:45	10:15	Coffee Break		
10:15	11:45	Large scale facility updates Chairperson: M. Stampanoni		
		10:15	A. Franciosi (Elettra Synchrotron) <i>Operation and Upgrades of Elettra and FERMI</i>	
		10:45	G. Martínez-Criado (ESRF Synchrotron) <i>EBS: New scientific opportunities</i>	
11:15	S. Pascarelli (EuXFEL Hamburg) <i>New scientific opportunities at the European X-ray Free Electron Laser</i>			
11:45	13:15	MS9 - Young scientist session Chairperson: P. Luches Room: Aula La Ginestra	MS9 - Young scientist session Chairperson: L. Petaccia Room: Aula A	
		11:45	O1: D. Schirone (Malmö University) <i>Using SAXS to explore novel extraction pathways for plant-sourced proteins suitable for sustainable food</i>	O1: D. Ronchetti (University of Hamburg) <i>Enhancing elastic x-ray scattering by control of transient electronic populations</i>
		12:00	O2: P. Carrara (University of Milan) <i>Investigating magneto-acoustic resonances via time-resolved optical polarimetry</i>	O2: A. Lopez (University of Roma Tre) <i>Study of structural changes in different Pd catalysts during the direct synthesis of hydrogen peroxide</i>
		12:15	O3: F. De Angelis (University of Roma Tre) <i>EXAFS Analysis of MBE-grown GeSn heteroepitaxial layers</i>	O3: S. Franco (CNR-ISC) <i>Study of the Phase Behavior of Doubly Responsive IPN Microgels</i>
		12:30	O4: W. Zhao (Elettra Synchrotron) <i>Electronic structure of predicted topological superconductor PbTaS₂</i>	O4: F. Paporoni (University of Camerino) <i>Enhancement of the structural stability in Li-ion batteries active material through oxide coating - a XAS study</i>
		12:45	O5: M. Ferraro (University of Calabria) <i>Application of X-ray computed microtomography to optical fibres</i>	O6: G. Mannucci (Sapienza University of Rome) <i>Characterization of Metal Based Deep Eutectic solvents</i>
		13:00	O6: D. Marchiani (Sapienza University of Rome) <i>Enhanced graphene metallicity via alkali metal deposition: a spectro-microscopy study</i>	
		13:15	14:45	Lunch
14:45	15:15	Poster awards Room: Aula La Ginestra		
15:15	16:00	Closing ceremony & Farewell coffee Room: Aula La Ginestra		

List of posters

- P1.** M. Coreno *"Inner shell ionization of highly charged ions with synchrotron radiation"*
- P2.** N. Hara *"Multiple scattering description of multicentre coherent emission in photoionization: the Cohen-Fano interference term in diatomic molecules revisited"*
- P3.** N. Hara *"Investigation of the spectra reconstruction requirements of high-resolution inelastic x-ray scattering spectra using SASE radiation"*
- P4.** S. Di Muzio *"Structural investigation of Deep Eutectic Solvents: far and medium infrared synchrotron characterization"*
- P5.** A. Di Cicco *"Complex phase behavior of amorphous selenium under pressure"*
- P6.** F. Bertelá *"Bifunctionalized silver nanoparticles for detection of Fe(III) ions in water"*
- P7.** M. Capeccia *"Time-resolved Raman spectroscopy on bulk and monolayer MoS₂"*
- P8.** A. M. Finardi *"Time-resolved optical and Raman spectroscopy under UHV conditions: a novel apparatus for pump-probe multi-messenger investigations"*
- P9.** V. Carpenella *"Photoexcited carriers at MAPbBr₃-SrTiO₃ interface studied by grazing angle Infrared spectroscopy"*
- P10.** C. Lentini Campallegio *"Charge Dynamics properties of Tripyrenboroxine on metal surfaces"*
- P11.** C. Mazzariol *"Effects of the confined space on the synthesis of non-doped and Eu³⁺-doped calcium molybdate nanophosphors"*
- P12.** R. Arletti *"High pressure intrusion of ternary aqueous solution in pure silica chabazite: structural investigation"*
- P13.** F. D'Acapito *"The LISA beamline at ESRF: present status"*
- P14.** F. Tavani *"X-ray absorption spectroscopy allows the detection of general Bromine oscillatory behaviour in the Belousov-Zhabotinskii reaction"*
- P15.** M. Busato *"X-ray absorption spectroscopy probes Ca²⁺ electrochemical intercalation in anatase nanotubes"*
- P16.** B. Garetto *"Qualitative and quantitative assessment of Cu-MOFs redox properties through in situ XAS analysis"*
- P17.** A. Tofoni *"Exploring the potential of theoretical XANES calculations in the analysis of phosphorus speciation"*
- P18.** G. Mannucci *"Nanosopic Segregation in Deep Eutectic Solvents with Different Hydrophobicity upon Cosolvent Addition"*
- P19.** C. Marini *"NOTOS and CLAESS beamlines: complementarities and synergie"*
- P20.** S. Brutti *"Realtime analysis of electrochemical reactions in batteries: the OpMetBat project"*
- P21.** S. Fatima *"Tracking the ionic exchange mechanism in Cu-exchanged Hydroxyapatites by in situ XAS: potential towards selective redox catalysis"*