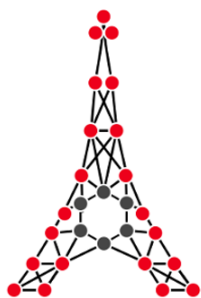


Wednesday, 13 of December
9:00 - 9:30 OPENING CEREMONY Anna Baldycheva
9:30 - 10:10 PLENARY SESSION Silvia Giordani
10:10 - 10:30 COFFEE BREAK
10:30 - 12:35 Special Symposium Smart, Functional Fibers and Textiles Chair: Alexander Gummenik
Guangming Tao Sylvain Danto Joshua Kaufmann Michael Fokine Burak Temelkuran Louis Van Der Elst
12:35 - 13:40 LUNCH
13:40 - 15:30 Special Symposium Innovations in Energy: Advancements in Nanoscience and Photovoltaics Chair: Pavel Ginzburg
Zhe Li Joe Briscoe Diego Colombara Gideon Segev Simona Achilli
15:30 - 15:50 COFFEE BREAK
15:50 - 17:50 Special Symposium THz Optoelectronics and Photonics Chair: Andrey Gorodetsky
Masayoshi Tonouchi Vladimir Antonov Juliette Mangeney Riccardo Degl'Innocenti David Citrin Sukhdeep Dhillon
17:50 - 19:00 WELCOME WINE RECEPTION and POSTER SESSION

Thursday, 14 of December
9:00 - 9:40 PLENARY SESSION David Andrews
9:40 - 10:10 PLENARY SESSION Thomas Webster
10:10 - 10:30 COFFEE BREAK
10:30 - 12:30 Smart nanomaterials Chair: Ben Hogan
Yury Yu Illarionov Jonas Johansson Yossi Rosenwalks Misha Portnoi Lioz Etgar Andrey Sukhorukov
12:30 - 13:30 LUNCH
13:30 - 15:20 Special Symposium Smart, Functional Fibers and Textiles Chair: Alexander Gummenik
Fabien Sorin Peter Mosley Noel Healy Alexander Gumennik Nicolas Joly Camilla Faccini De Lima
15:20 - 15:40 COFFEE BREAK
15:40 - 17:35 Optoelectronic and Photonic Materials Chair: Pavel Ginzburg
Alberto Bramati Dmitry Chigrin Andrei Lavrinenko Eugenio Maggiolini Soraya Caixeiro Igor Rozhansky Najja Alnami
19:00 - 22:00 GALA DINNER

Friday, 15 of December	
9:00 - 10:30 WOMEN in STEM "Brunch au chocolat" Panel discussion "Career development in Academia"	
10:40 - 12:40 NanoPhotonics and Metamaterials Chair: Ben Hogan New Materials Development and Characterisation Methods I Chair: Anna Baldycheva 	
Pavel Ginzburg Kristina Rusimova Habib Rostami Reinhard Geiß Calum Williams Giuseppe Brunetti	Giuseppina Padeletti Angela Debruyne Manal Alhazmi Haider Butt Noam Lusthaus Ejazulhaq Rahimi Yashy Raghoo Mikhail Rybin
12:40 - 13:40 LUNCH	
13:40 - 15:30 Quantum Optics and Quantum Metrology Chair: Misha Portnoi New Materials Development and Characterisation Methods II Chair: Anna Baldycheva 	
Ortwin Hess Alina Karabchevsky Ferruccio Renzoni Oleksandr Kyriienko Pavlos Savvidis	Vipul Agarwal Vladimir Belyi Chenxi Yang Mohammed El Amine Zair Noureddine Adjeroud Nasrin Aliasgharlou Mohamad Danial Safiq
15:30 - 16:00 CLOSING CEREMONY and BEST PRESENTATIONS AWARDS	



CRISTMAS 2023

Conference on Research and Innovations in Science
and Technology of Materials Programme

École Nationale Supérieure de Chimie de Paris
13-15 December 2023

Programme

Wednesday, December 13th

8:45 - 9:15	Registration and morning coffee	Hall d'entrée et Galerie
9:15 - 9:30	Opening Ceremony	Amphithéâtre Chaudron

Anna Baldycheva (STEMM Global Scientific Society, University of Exeter, UK)

9:30 - 10:10	Plenary Talk Chair: Anna Baldycheva	Amphithéâtre Chaudron
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Silvia Giordani (Dublin City University, Ireland)

"Tailoring Carbon Nanoparticles for Targeted Therapeutic Applications"

10:10 - 10:30	Coffee Break	Galerie
10:30 - 12:35	Special Symposium Smart, Functional Fibers and Textiles Chair: Alexander Gummenik	Amphithéâtre Chaudron

10:30 - 11:00 **Guangming Tao** (Huazhong University of Science and Technology, China)

11:00 - 11:20 **Sylvain Danto** (University of Bordeaux, France)
"Recent progresses in the fabrication of multimaterial fibres using thermoplastic polymers (PMMA, PES) and glasses with intermediate T_g"

11:20 - 11:40 **Joshua Kaufmann** (CREOL, University of Central Florida, USA)
"Towards Scalable Manufacturing of E-Textiles and Functional Fabrics"

11:40 - 12:00 **Michael Fokine** (Nobula 3D, Sweden)
"Glass 3D Printing - from Photonic to Life Science Applications"

12:00 - 12:20 **Burak Temelkuran** (Imperial College London, UK)
"Medical Fibres for Therapeutics, Diagnostics and Robotics"

12:20 - 12:35 **Louis Van Der Elst** (Indiana University, USA)
"Inhibition of Bacterial Proliferation in Deep Wounds with Electroceutical Fibres"

12:35 - 13:40	Lunch	Cantina 45 Rue D'Ulm
13:40 - 15:30	Special Symposium Innovations in Energy: Advancements in Nanoscience and Photovoltaics Chair: Pavel Ginzburg	Amphithéâtre Chaudron

13:40 - 14:10 **Zhe Li** (QMUL Materials Research Institute, China)
"Emerging solar cells beyond silicon-overcoming the existing challenges to unlock commercialisation"

14:10 - 14:30 **Joe Briscoe** (Queen Mary University of London, UK)
"Ferroelectric nanocomposites for enhanced solar energy conversion"

14:30 - 14:50 **Diego Colombara** (University of Genova, Italy)
"Cu(In,Ga)Se₂ photovoltaics from fundamentals to innovation pathways"

14:50 - 15:10 **Gideon Segev** (Tel Aviv University, Israel)
"Ratchet based ion pumps"

15:10 - 15:30 **Simona Achilli** (University of Milan, Italy)
"Theoretical and experimental characterization of sp-, sp²- carbon 2D networks obtained via on-surface synthesis"

15:30 - 15:50	Coffee Break	Galerie
15:50 - 17:50	Special Symposium THz Optoelectronics and Photonics Chair: Andrey Gorodetsky	Amphithéâtre Chaudron

15:50 - 16:10 **Masayoshi Tonouchi** (Osaka University, Japan)
"How to use LTEM in real semiconductor manufacturing process scenes"

16:10 - 16:30 **Vladimir Antonov** (Royal Holloway University of London, UK)
"The current standard based on quantum phase slip in the superconducting circuits"

16:30 - 16:50 **Juliette Mangeney** (LPENS, France)
"Ultra-strongly coupled THz resonators combining high Q and a deep-subwavelength mode volume"

16:50 - 17:10 **Riccardo Degl'Innocenti** (Queen Mary University of London, UK)
"THz Near-field Spectroscopy of Metamaterial Resonators"

17:10 - 17:30

David Citrin (Georgia Institute of Technology, USA)

"Terahertz Nondestructive Evaluation for Microelectronics Packaging and 6G Materials"

17:30 - 17:50

Sukhdeep Dhillon (École Normale Supérieure De Paris, France)

"Layer-controlled Terahertz properties of 2D Transition metal dichalcogenides - from nonlinear valleytronics to spintronics"

17:50 - 19:00

**WELCOME WINE RECEPTION and
POSTER SESSION**

Hall d'entrée et Galerie

P1

Anastasia Novikova (Ben-Gurion University of Negev, Israel)

"Hollow-Micro pillared Glass Fabricated on Hollow Joe Pye Weed-Inspired Tubes for Detecting Molecular Signatures"

P2

Viktor Filatov (SkyLab AG, Switzerland)

"Towards a restoration of cotton fabrics: the research of a novel combination based on sucrose and malic acid for cross-linking fibres and colour retention during laundry washing cycles"

P3

Seddiki Nesrine (M'Hamed Bougara University, Algeria)

"Elaboration of nanocomposite hydrogel with laponite content as nanoclay: synthesis and swelling behaviour"

P4

Manal Alhazmi (Jazan University, Saudi Arabia)

"Raman and IR spectroscopic study in CaSO₄ · 2H₂O Two-Dimensional Nanoscale System"

P5

Abdul Mannan Butt (Khalifa University, UAE)

"Atomically Precise Ligand-Stabilised Copper Hydride Nanoclusters as Electrocatalyst"

P6

Rajdip Dey (Sister Nivedita University, Kolkata, India)

"Novel, Low-Cost Green Synthesis of Water Soluble Carbon Nanomaterials"

P7

Aotmane En Naciri (Université de Lorraine, France)

"Novel, Low-Cost Green Synthesis of Water Soluble Carbon Nanomaterials"

P8

Mezaine Hamel (M'Hamed Bougara University, Algeria)

"A New Arctangent Model for Magnetic Hysteresis Modeling of Terfenol-D"

P9

Ahmed Nait Ouslimane (Mouloud Mammeri University, Algeria)

"Temperature-Dependent Hysteresis Modelling for Fe₅₀/Ni₅₀ Magnetic Alloys in Nanoparticle and Thin Film"

EP1

Abigail Bond (University of Leeds, UK)

"Towards the Liquid Crystal Chemical Sensor via Confinement Within a Stripe Pattern"

EP2

Sinan Ali Bilmez (Olgun Çelik Manisa, Turkey)

"Experimental and Numerical Investigation of Energy Absorption Characteristics of a E-Glass/Epoxy Crash Box"

EP3 **Nino Ponjavidze** (Georgian Technical University, Georgia)
"Quantum Dots Doped Cholesteric Liquid Crystals Based Solar Concentrator"

EP4 **Murat Işık** (Bingöl University, Turkey)
"Reductive amination of some 3- and 8-formylBODIPYs"

Thursday, December 14th

8:30 - 9:00	Registration and morning coffee	Hall d'entrée et Galerie
9:00 - 9:40	Plenary Talk Chair : Anna Baldycheva	Amphithéâtre Chaudron

David Andrews (University of East Anglia, UK)
"Optics à la main"

9:40 - 10:10	Keynote Talk Chair : Anna Baldycheva	Amphithéâtre Chaudron
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Thomas Webster (Hebei University of Technology, China)
"The Role of Artificial Intelligence (AI) for Improving Biomaterial Design and Use"

10:10 - 10:30	Coffee Break	Galerie
10:30 - 12:30	Smart Nanomaterials Chair: Ben Hogan	Amphithéâtre Chaudron

10:30 - 10:50 **Yury Illarionov** (Southern University of Science and Technology (SUSTech), China)
"Transition of 2D FETs from LAB to FAB: possible paths and the main challenges"

10:50 - 11:10 **Jonas Johansson** (Lund University, Sweden)
"Kinking of Semiconductor Nanowires at High Supersaturation"

11:10 - 11:30 **Yossi Rosenwaks** (Tel Aviv University, Israel)
"Large Area Electrostatically Formed Nanowire (EFN) – a VLSI Compatible Ppb Level Gas Sensing Platform"

11:30 - 11:50 **Misha Portnoi** (University of Exeter, UK)
"Terahertz radiation emission from quasi-one-dimensional carbon nanostructures"

11:50 - 12:10 **Lioz Etgar** (Hebrew University of Jerusalem, Israel)
"Chiral low-dimensional perovskite solar cells"

12:10 - 12:30 **Andrey Sukhorukov** (Australian National University, Australia)

17:35 - 17:50

Nalja Alnami (Jazan University, Saudi Arabia)

"Development and Characterization of Monolayer and Sub-Monolayer Intermediate Band Solar Cells"

19:00 - 22:00	GALA DINNER	Les Éditeurs restaurant 4, Carrefour de L'odéon, 75006 Paris
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Friday, December 15th

8:45 - 9:00	Registration and Coffee	Hall d'entrée et Galerie
9:00 - 10:30	Women in STEMM Brunch Chair: Anna Baldycheva	Amphithéâtre Chaudron

Roundtable *"Career development in Academia"*

10:40 - 12:40	NanoPhotonics and Metamaterials Chair: Ben Hogan	Amphithéâtre Chaudron
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10:30 - 10:50

Pavel Ginzburg (Tel Aviv University, Israel)

"Optics Behind Vaterite-based Drug Delivery"

10:50 - 11:10

Kristina Rusimova (University of Bath, UK)

"Exploring quantum molecular dynamics with light and scanning probe microscopy"

11:10 - 11:30

Habib Rostami (University of Bath, UK)

"Nonlinear Charge and Spin Transport in 2D WTe₂"

11:30 - 11:50

Reinhard Geiß (Fraunhofer IOF, Germany)

"Wafer-scale fabrication of thin-film lithium niobate metasurfaces and integrated photonic device"

11:50 - 12:10

Calum Williams (University of Exeter, UK)

"Multispectral imaging: actively tunable and bespoke nanostructured optical filters"

12:10 - 12:30

Nabarun Saha (Politecnico di Bari, Italy)

"Optical slot-assisted metasurface for IgG protein detection"

10:40 - 12:40	Materials Development and Characterisation Methods I Chair: Anna Baldycheva	Salle du Conseil
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- 10:30 - 10:45** **Giuseppina Padeletti** (Institute of Nanostructured Materials, CNR Italy)
"Albarelllo Baglioni: shed new light on its origin and production through advanced non-destructive techniques"
- 10:45 - 11:00** **Angela Debruyne** (Ghent University, Belgium)
"Oxygenation gradients in multicellular spheroids: are they always as expected?"
- 11:00 - 11:20** **Vipul Agarwal** (University of New South Wales, UK)
"Manoeuvring filler arrangement in polymer nanocomposite coatings"
- 11:20 - 11:35** **Haider Butt** (Khalifa University, UAE)
"Multi-material and Multi-functional 3D Printed Smart Contact Lenses"
- 11:35 - 11:50** **Noam Lusthaus** (Ben-Gurion University of Negev, Israel)
"Polymeric Composite Film for Frequency Filtration"
- 11:50 - 12:05** **Ejazulaq Rahimi** (Ritsumeikan University, Japan)
"Development of "Next-Generation Concrete" made only from Concrete Waste Powder and Wood Powder and Challenges for Construction Structural Materials"
- 12:05 - 12:20** **Yashy Raghoo** (University of Mauritius, Mauritius)
"Banana Fibre Based Cementitious Composites – A Greener Approach into the Construction Industry"
- 12:20 - 12:35** **Mikhail Rybin** (ITMO University, Russia)
"Quasicrystalline structures for electromagnetic wave manipulation Optics"

12:35 - 13:40	Lunch	Cantina, 45 Rue D'Ulm
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13:40 - 15:30	Quantum Optics and Quantum Metrology Chair: Misha Portnoi	Amphithéâtre Chaudron
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- 13:30 - 14:00** **Ortwin Hess** (Trinity College Dublin, Ireland)
"Quantum Metamaterials for Quantum Nanophotonics"
- 14:00 - 14:20** **Alina Karabchevsky** (Ben-Gurion University of Negev, Israel)
"Twisted Integrated Photonics for Polarisation-Encoded Quantum Information Processing Circuits"
- 14:20 - 14:40** **Ferruccio Renzoni** (University College London, UK)
"Two-photon electromagnetic induction imaging with atomic magnetometers"
- 14:40 - 15:00** **Oleksandr Kyriienko** (University of Exeter, UK)
"Nonlinear optical saturation in two-dimensional polaritonic systems"

15:00 - 15:20 **Pavlos Savvidis** (Westlake University, China)

"Trapping Polariton Condensates in Optically Imprinted Potentials: From 2D Spin Lattices to Polaritonic Qubits in an Annular Traps"

15:30 - 16:00

Closing Ceremony And Best Presentation Awards