



École Polytechnique, Palaiseau – France  
&  
Synchrotron SOLEIL, Saint-Aubin - France

## Programme

**Thursday, January 22<sup>nd</sup>**

*ÉCOLE POLYTECHNIQUE – AUDITORIUM GAY-LUSSAC*

- 09:00 - 10:00    Registration & coffee
- 10:00 - 10:15    Welcome / Introduction  
**Elise Berrier** - ORGUES Chairperson
- 10:15 - 10:30    The word of SOLEIL General Director  
**Jean Daillant**
- 10:30 - 10:50    Last improvements of the Machine  
**Amor Nadji**
- 10:50 - 11:20    Scientific highlights and prospective of SOLEIL  
**Paul Morin / Andy Thompson**
- 11:20 - 11:50    Hydrogen and nitrogen under pressure: Towards a “killer application”?  
**Paul Loubeyre** – CEA, Bruyères-le-Chatel, France
- 11:50 - 12:20    In situ X-ray absorption spectroscopy applied to hydrothermal Geochemistry  
**Denis Testemale** - Institut Neel , Grenoble, France
- 12:20 - 12:50    Photon induced desorption of interstellar relevant ices in the VUV  
**Jean Hugues Fillion** – LERMA, Paris, France
- 13:00 - 14:30    Lunch

**Transfer to SOLEIL (14h30)**



## Technical Workshops :

### -Samples environments : extreme conditions

#### *Conference Room, Reception Building*

"Samples environment: The sample environment available on a beam-line is crucial for the success of your experiment. We will discuss the different possibilities offered on beam-lines as specific ancillary equipment or as a common pool shared among beam-lines, and the relative perspectives. This year special focus we will be on extreme condition, in particular on high pressure, high and low temperatures, electric and magnetic fields".

Contributors: L. Joly et A. Polian

15:00 - 16:30

### - Data storage and analysis

#### *Auditorium BLOCH, CEA L'Orme des Merisiers*

Synchrotron data at SOLEIL, what do users expect?

How to deal with the rapid evolution of the size, storage and access of generated data and of the processing programs?

Contributors : P. Legrand, P. Ohresser, A. Buteau and B. Gagey

### - Combined measurements

#### *Auditorium SOLEIL, Main Building*

"Coupled experiments: what you can do and what do you want to do?

We often want to perform simultaneously several analyzes of our samples, to obtain maximum information. We will discuss the various options available on the SOLEIL beamlines for coupled experiments".

Contributors: V. Briois, P. Fertey, S. Réguer and D. Vantelon

16:30 – 17:00 *Coffee break*

17:00 - 19:30 Posters session / Commercial exhibition / Users' questions Booth

18:00 - 19:30 Visit of HERMES, MARS & ROCK Beamlines

19:30 - 21:00 *Buffet* / Award of the best student poster

## Friday, January 23<sup>rd</sup>

9:00 - 11:00 Parallel sessions (see detailed programme here after)

11:00 - 11:30 *Coffee break*

11:30 - 13:00 Parallel sessions (see detailed programme here after)

13:00 - 14:30 *Lunch*

#### *ECOLE POLYTECHNIQUE – AUDITORIUM GAY-LUSSAC*

14:30 - 15:00 High resolution structural and dynamical Synchrotron studies of aperiodic materials  
**Bertrand Toudic** - Université de Rennes, France

15:00 - 16:00 Synthesis of technical workshops and discussion with SOLEIL Management

16:00 - 16:15 Conclusions



## Parallel Sessions Schedule

### Biology - Health

Chairpersons: Valérie BIOU and Isabelle BROUTIN  
*ÉCOLE POLYTECHNIQUE – AUDITORIUM MONGE*

- |                           |   |
|---------------------------|---|
| 09:00 - 09:30<br>(25'+5') | Structural insights into the dimerization and the DNA binding of the response regulator ComE from <i>Streptococcus pneumonia</i><br><b>Sophie Quevillon-Cheruel</b> - invited speaker (I2BC, Orsay, France) |
| 09:30 - 09:50<br>(15'+5') | Structural basis for the assembly of the human CSF-1:CSF-1R extracellular signaling complex<br><b>Jan Felix</b> - (L-ProBE, Ghent, Belgium)   |
| 09:50 - 10:10<br>(15'+5') | Specificity of periplasmic binding proteins in <i>Agrobacterium Tumefaciens</i><br><b>Loïc Marty</b> – (LEBS, Gif-sur-Yvette, France)   |
| 10:10 - 10:30<br>(15'+5') | Structural study on molecular switch involved in quorum sensing in <i>Bacillus cereus</i><br><b>Antoine Talagas</b> – (IBBMC, Orsay, France)  |
| 10:30 - 10:50<br>(15'+5') | Structure determination of the central domain of human dystrophin by coupling SAXS and new interactive flexible fitting method<br><b>Olivier Delalande</b> – (IGDR, Rennes, France)                         |
| 10:50 - 11:10             | Coffee break  |
| 11:10 - 11:40<br>(25'+5') | Speciation of a group I ribozyme into a lariat capping ribozyme<br><b>Benoît Masquida</b> - invited speaker (GMGM, Strasbourg, France)  |
| 11:40 - 12:00<br>(15'+5') | 1-methyladenosine in transfer RNA<br><b>Clément Dégut</b> – (LBC-NMR, Paris, France)  |
| 12:00 - 12:20<br>(15'+5') | The ATP-mediated formation of the YgjD-YeaZ-YjeE complex is required for the biosynthesis of tRNA t <sup>6</sup> A in <i>E. coli</i><br><b>Wenhua Zhang</b> – (IBBMC, Orsay, France)                        |
| 12:20 - 12:40<br>(15'+5') | TRF2/RAP1 complex: The whole is greater than the sum of its parts<br><b>Guillaume Gaullier</b> – (CEA, iBiTecS, Gif-sur-Yvette, France)   |
| 12:40 - 13:00<br>(15'+5') | Cell localisation of radiosensitizing gadolinium-based nanoparticles in glioblastoma cells<br><b>Lenka Štefančíková</b> – (ISMO, Orsay, France)   |



## Parallel Sessions Schedule

### Chemistry & Physico-Chemistry, In Situ Reactivity, Soft Matter

Chairpersons: Sandrine LYONNARD and Elise BERRIER

*ECOLE POLYTECHNIQUE – AUDITORIUM CARNOT*

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|---------------------------|---|
| 09:00 - 09:30<br>(25'+5') | The near-ambient pressure XPS at TEMPO beamline, first results<br><b>Jean-Jacques Gallet</b> - <i>invited speaker (LCPMR, Paris, France)</i>  |
| 09:30 - 09:50<br>(15'+5') | Recent applications and results in near ambient pressure XPS: In-situ cell designs for liquid environments<br><b>Michael Meyer</b> – <i>(SPECS, Berlin, Germany)</i>                                    |
| 09:50 - 10:10<br>(15'+5') | In situ site-selective K-edge XAS: New insights into the transformation of monometallic compounds<br><b>Amélie Bordage</b> – <i>(ICMMO, Orsay, France)</i>  |
| 10:10 - 10:30<br>(15'+5') | Modeling hydrodesulfurization (HDS) reactions, multivariate curve resolution chemometric technique applied to in-Situ XAFS<br><b>Danilo Oliveira de Souza</b> – <i>(UCCS, Villeneuve d'Asq, France)</i> |
| 10:30 - 10:50<br>(15'+5') | Use of model materials for fission products release study in severe accidents conditions<br><b>Ernesto Geiger</b> – <i>(CEA, Saint-Paul-Lez-Durance, France)</i>  |
| 10:50 - 11:10             | <i>Coffee break</i>   |
| 11:10 - 11:40<br>(25'+5') | Shape control in wet synthesis of anisotropic gold nanoparticles<br><b>Fabienne Testard</b> - <i>invited speaker (CEA Saclay, Gif-sur-Yvette, France)</i>   |
| 11:40 - 12:00<br>(15'+5') | Determination of gold nanoparticles formation step by in situ time-resolved XANES in a microfluidic device<br><b>Jean-Sébastien Girardon</b> – <i>(UCCS, Villeneuve d'Asq, France)</i>                  |
| 12:00 - 12:20<br>(15'+5') | Self-assembly of CdSe nanoplatelets<br><b>Benjamin Abécassis</b> – <i>(LPS, Orsay, France)</i>  |
| 12:20 - 12:40<br>(15'+5') | Assembly and disassembly kinetics of virus-like particles probed by time-resolved small-angle X-ray scattering<br><b>Didier Law-Hine</b> – <i>(LPS, Orsay, France)</i>                                  |
| 12:40 - 13:00<br>(15'+5') | Controlling self-assembly of ferrofluids during evaporation in PDMS<br><b>Clément Guibert</b> – <i>(PHENIX, Paris, France)</i>  |



## Parallel Sessions Schedule

### Cultural heritage, archaeology, environment, geosciences

Chairpersons: Stéphanie ROSSANO and Emmanuel GUILLON

*ECOLE POLYTECHNIQUE – MEETING ROOM N°16*

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|---------------------------|--|
| 10:00 - 10:30<br>(25'+5') | Actinide speciation in sea water and in a model biomarker<br><b>Christophe den Auwer</b> - <i>invited speaker (ICN, Nice France)</i>   |
| 10:30 - 10:50<br>(15'+5') | Sub-critical alkaline stabilization archaeological iron conservation: Transformation of akaganeite followed by in-situ XAS at the iron K-edge and completed by XRD analysis<br><b>Marine Bayle</b> - <i>(CEA Saclay, Gif-sur-Yvette, France)</i> |
| 10:50 - 11:10             | <i>Coffee break</i>  |
| 11:10 - 11:40<br>(25'+5') | Complementarity of X-rays techniques for the conservation of iron cultural heritage materials<br><b>Solenn Reguer</b> - <i>invited speaker (Synchrotron SOLEIL, Gif-sur-Yvette, France)</i>  |
| 11:40 - 12:00<br>(15'+5') | Interest of high resolution X-ray absorption spectroscopy in environmental sciences<br><b>Isabelle Kieffer</b> - <i>(OSUG, Grenoble, France)</i>   |
| 12:00 - 12:20<br>(15'+5') | Melting properties of the deep earth's mantle investigated by in situ measurements<br><b>Denis Andrault</b> - <i>(LMV, Clermont-Ferrand, France)</i>   |
| 12:20 - 12:40<br>(15'+5') | Precipitation in "old" duralumin used in airplanes<br><b>Audrey Cochard</b> - <i>(CEMES, Toulouse, France)</i>   |
| 12:40 - 13:00<br>(15'+5') | PSICHE: In-situ imaging and tomography for materials science at SOLEIL. Presentation and perspectives.<br><b>Andrew King</b> - <i>(Synchrotron SOLEIL, Gif-sur-Yvette, France)</i>   |





## Parallel Sessions Schedule

### Diluted Matter

Chairpersons: Vincent BOUDON and Francis PENENT

*ECOLE POLYTECHNIQUE –SAUVY MEETING ROOM*

- |                           |   |
|---------------------------|---|
| 09:00 - 09:30<br>(25'+5') | Relaxation dynamics of atoms and molecules in the tender x-ray region<br><b>Marc Simon</b> - <i>invited speaker (LCPMR, Paris, France)</i>                              |
| 09:30 - 09:50<br>(15'+5') | XUV induced fragmentation dynamics of 5-halouracils investigated in the time and energy domain<br><b>Raluca Cireasa</b> – <i>(ISMO, Orsay, France)</i>                  |
| 09:50 - 10:10<br>(15'+5') | Understanding the internal torsion and bending motion of dimethyl ether via isotopic studies<br><b>Pia Kutzer</b> – <i>(University of Kassel Kassel, Germany)</i>       |
| 10:10 - 10:30<br>(15'+5') | Einstein–Bohr recoiling double-slit Gedanken experiment performed at the molecular level<br><b>Minna Pattanen</b> - <i>(Synchrotron SOLEIL, Gif-sur-Yvette, France)</i> |
| 10:30 - 10:50<br>(15'+5') | Gas-phase ion-molecule chemistry: An experimental study of $\text{CH}_3^+ + \text{CH}_4$<br><b>Allan Lopes</b> – <i>(LCP, Orsay, France)</i>                            |
| 10:50 - 11:10             | <i>Coffee break</i>   |
| 11:10 - 11:40<br>(25'+5') | Rotational doppler effect<br><b>Faris Gel'mukhanov</b> - <i>invited speaker (Royal Institute of Technology, Stockholm, Sweden)</i>                                      |
| 11:40 - 12:00<br>(15'+5') | New information on $\text{HC}_3\text{N}^+$ using Synchrotron- and laser-based photoelectron studies<br><b>S  verine Boy  -P  ronne</b> – <i>(ISMO, Orsay, France)</i>   |
| 12:00 - 12:20<br>(15'+5') | Ultrafast dynamics and electronic state: Lifetime interferences in chlorine-containing molecules<br><b>Gildas Goldsztejn</b> – <i>(LCPMR, Paris, France)</i>            |
| 12:20 - 12:40<br>(15'+5') | X-ray photoionization of atomic oxygen ions<br><b>Brendan M. McLaughlin</b> – <i>(CTAMOP, Belfast,UK &amp; ITAMP, Cambridge,USA)</i>                                    |
| 12:40 - 13:00<br>(15'+5') | High density THz frequency comb produced by coherent Synchrotron radiation<br><b>Stefano Tammaro</b> - <i>(Synchrotron SOLEIL, Gif-sur-Yvette, France)</i>              |



## Parallel Sessions Schedule

### Electronic & Magnetic Property of Matter, Surfaces and Interfaces

Chairpersons: Antonio TEJEDA and Matteo d'ASTUTO

*ECOLE POLYTECHNIQUE – AUDITORIUM BECQUEREL*

- |                           |   |
|---------------------------|---|
| 09:00 - 09:30<br>(25'+5') | Infrared near-field imaging and spectroscopy with broadband sources<br><b>Y. De Wilde</b> - <i>invited speaker (Institut Langevin, Paris, France)</i>   |
| 09:30 - 09:50<br>(15'+5') | One dimensional $\pi$ -conjugated band dispersion in ordered polymeric chains<br><b>Yannick Fagot-Revurat</b> – <i>(Institut Jean Lamour, Vandoeuvre-les-Nancy, France)</i>   |
| 09:50 - 10:10<br>(15'+5') | Coexistence of metallic and semiconducting nanoribbons on a continuous graphene layer<br><b>Arlensiu Celis</b> – <i>(LPS, Orsay, France)</i>  |
| 10:10 - 10:30<br>(15'+5') | Orientational tuning of the two-dimensional electron gases at the low-index surfaces of $\text{SrTiO}_3$<br><b>Tobias C. Rödel</b> – <i>(CSNSM, Orsay, France)</i>  |
| 10:30 - 10:50<br>(15'+5') | In depth atomic structure of the pentacene/Cu(110) interface in the monolayer coverage regime: Theory and X-ray diffraction results<br><b>Michèle Sauvage</b> - <i>(Synchrotron SOLEIL, Gif-sur-Yvette, France)</i> |
| 10:50 - 11:10             | Coffee break  |
| 11:10 - 11:40<br>(25'+5') | Magnetic cooling at molecular level: Two case studies by XAS and XAMCD investigation<br><b>Marco Affronte</b> - <i>invited speaker (Università di Modena e Reggio Emilia, Modena, Italy)</i>                        |
| 11:40 - 12:00<br>(15'+5') | Direct determination of the chemical ordering of $\text{Co}_{1.5}\text{Fe}_{1.5}\text{Ge}$ epitaxial thin films<br><b>Alexandre M. Bataille</b> – <i>(Institut Jean-Lamour, Nancy, France)</i>                      |
| 12:00 - 12:20<br>(15'+5') | Laser induced dynamics in FeRh<br><b>Federico Pressacco</b> - <i>(Synchrotron SOLEIL, Gif-sur-Yvette, France)</i>   |
| 12:20 - 12:40<br>(15'+5') | Investigation of the magnetic spin structure with X-ray absorption spectroscopy in transmission mode<br><b>Kai Chen</b> - <i>(Synchrotron SOLEIL, Gif-sur-Yvette, France)</i>                                       |
| 12:40 - 13:00<br>(15'+5') | XMCD at Co and Fe L <sub>2,3</sub> edges of photomagnetic Co/Fe dinuclear complex<br><b>Fatima Sadaf</b> – <i>(IMPMC, Paris, France)</i>  |



## Parallel Sessions Schedule

### Matter & Material Properties : Structure, Organization, Characterization, Elaboration

Chairpersons: Judith MONNIER and Sandra NINET

*ECOLE POLYTECHNIQUE – AUDITORIUM GAY-LUSSAC*

- |                           |  |
|---------------------------|--|
| 09:00 - 09:30<br>(25'+5') | About nuclear fuels on MARS<br><b>Philippe Martin</b> - invited speaker. (CEA, Cadarache, France)  |
| 09:30 - 09:50<br>(15'+5') | The local environment of substitutional $Al^{3+}$ in goethite probed by XANES and first-principles calculations<br><b>Manoj Ducher</b> - (IMPMC, Paris, France)  |
| 09:50 - 10:10<br>(15'+5') | Tracking the chemical composition of embedded magnetic nanowires by X-ray absorption spectroscopy<br><b>Anastasiia Novikova</b> - (Synchrotron SOLEIL, Gif-sur-Yvette & GEMC, Versailles, France)                                  |
| 10:10 - 10:30<br>(15'+5') | In situ anomalous X-ray scattering: chemical order in Ag-M nanoparticles during growth and annealing<br><b>Asseline Lemoine</b> - (CRMD, Orléans, France)  |
| 10:30 - 10:50<br>(15'+5') | The new RIXS-MCD end-station at GALAXIES: a photon-in, photon-out tool to probe magnetism under extreme conditions using hard X-rays<br><b>James M. Ablett</b> - (Synchrotron SOLEIL, Gif-sur-Yvette, France)                      |
| 10:50 - 11:10             | Coffee break   |
| 11:10 - 11:40<br>(25'+5') | Anomalous single crystal diffraction technique: the ideal tools to investigate the Cu/Zn disorder in kesterite photovoltaic compound<br><b>Alain Lafond</b> - invited speaker (Institut des Matériaux Jean Rouxel, Nantes, France) |
| 11:40 - 12:00<br>(15'+5') | Laue diffraction microscopy on French CRG-IF BM32 at ESRF<br><b>Jean-Sébastien Micha</b> - (Université Grenoble Alpes/CEA-INAC, Grenoble, France)  |
| 12:00 - 12:20<br>(15'+5') | In situ combined Synchrotron X-ray diffraction and wafer curvature measurements on chalcogenide films<br><b>Toufik Ouled-Khachroum</b> – (Aix-Marseille Université, IM2NP, Marseille, France)                                      |
| 12:20 - 12:40<br>(15'+5') | Mechanical study of metallic thin films under controlled biaxial deformation<br><b>Raphaëlle Guillou</b> - (Institut P', Poitiers, France)   |
| 12:40 - 13:00<br>(15'+5') | Ammonia monohydrate at high pressure<br><b>Jean-Antoine Queyroux</b> - (IMPMC, Paris, France)  |