



Advanced Quantum Materials 2023

International Workshop

June 7-8 2023, Marseille, France
Campus Pharo, Aix-Marseille University

Final Program

Plenary Speakers 35' + 5' QA

Keynote Speakers 20' + 5' QA

Speakers 15' + 5' QA

Wednesday, June 7

08:30 **Registration, Salle des Voûtes (SdV)**

Amphithéâtre Gastaut

09:15 Opening by **LAYET Jean-Marc**
President of the French Physical Society, Provence section

09:30 Welcome speech by **BERTON Eric**, President of Aix-Marseille Université

Session 1, Chair: LE LAY Guy

09:45 **Plenary Speaker: HASEGAWA Shuji**
[Quantum Materials boost quantum technology](#)

10:25 **Keynote Speaker: HERSAM Mark**
[Boron in the 2D Limit: Borophene, Borophane, and Beyond](#)

10:50 **Coffee Break (SdV)**

Session 2, Chair: GAUDRY Émilie

11:15 **Speakers:**
ANTONATOS Nikolas
[Progress in the synthesis and application of arsenene and phosphorene](#)

11:35 **ATTACCALITE Claudio**
[Luminescence in hexagonal boron nitride single layer: exciton-phonon coupling and the role of substrate](#)

11:55 **BAMPOULIS Pantelis**
[Quantum spin Hall states and topological phase transition in germanene](#)

12:15 **GIOSUS Theodosis**
[Germanene: a versatile member of the family of 2D materials](#)

12:35 **Keynote Speaker: JAHANGIROV Seymour**
[Variations on a Theme in B Flat](#)

13:00 **Lunch (SdV)**

Session 3, Chair: FIGUIERA Marcos

- 14:00 **Keynote Speaker: GAUDRY Émilie**
[Ultra-thin oxide quasicrystalline films: structures and stabilities](#)
- 14:25 **Speakers:**
BISSON Régis
[Graphene functionalization: signatures from vibrational spectroscopy](#)
- 14:45 **JUGOVAC Matteo**
[Inducing Single-Spin Polarized Flat Bands in Monolayer Graphene](#)
- 15:05 **ILIOLOPULOS Konstantinos**
[Nonlinear optical responses of 2D materials](#)
- 15:25 **CAVASSILAS Nicolas**
[Laser cooling in van der Waals heterojunctions](#)

15:45 Coffee Break + Poster Session (SdV)

Session 4, Chair: JIA Jinfeng

- 16:20 **Speakers:**
CREN Tristan
[Huge doping and unconventional superconductivity in NbSe₂ misfit compounds](#)
- 16:40 **FIGUIERA Marcos**
[Emergence of spin-polarized Majorana zero modes in penta-silicene nanoribbons](#)
- 17:00 **MARTIN Thierry**
[Proposals for the detection of Majorana fermions in topological superconductors with quantum noise](#)
- 17:20 **FROLOV Sergey**
[Unconventional Josephson Effects in Hybrid Superconductor-Semiconductor Junctions](#)
- 17:40 **WIESENDANGER Roland**
[Bottom-up Design of 1D Topological Superconductors and Associated Majorana Bound States](#)

**18:30 - 20:00 Reception at the Town Hall - Quai du Port
Mairie de Marseille - Salle Bailli de Suffren**



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Thursday, June 8

Amphithéâtre Gastaut

Session 5, Chair: *HASEGAWA Yukio*

09:00

Plenary Speaker: MOUROU Gérard

[Passion Extreme Light: For the greatest benefit of human kind](#)

09:40

Keynote Speaker: BERBEZIER Isabelle

[Van der Waals heteroepitaxy of air stable quasi-free standing silicene layers on CVD epitaxial graphene/6H-SiC](#)

10:05

Speaker:

KRAWIEC Mariusz

[Dirac Fermions in Au-Supported Planar Silicene](#)

10:25

Coffee Break + Poster Session (SdV)

Session 6, Chair: *MÜLLER Pierre*

Speakers:

11:00

DE PADOVA Paola

[Silicene and Multilayer Silicene on Si\(111\) \$\sqrt{3} \times \sqrt{3}\$ R30°-Bi: evidence for sp²-like Hybridization of Si Valence Orbitals-CsPbBr₃ on Si\(111\) and lead-free Cs₂AgBiBr₆ on ITO](#)

11:20

ZDYB Ryszard

[Co Ferromagnetic Film/Silicene Heterostructure](#)

11:40

PALMINO Franck

[2D molecular self-assembled nanoporous networks on silicon surface](#)

12:00

CHUZEL Olivier

[Organic Nano-Tattoos on Surface Designed by AFM Catalysis](#)

12:20

COSSARO Albano

[Boroxine-based 2D architectures on Au\(111\) surface](#)

12:40

Lunch (SdV)

Session 7, Chair: ZANDVLIET Harold

- 13:40 Speakers:
JIA Jinfeng
[New progresses in topological superconductors by proximity effect](#)
- 14:00 **SAKAMOTO Kazuyuki**
[Spin-polarized electronic states of bilayer superconducting materials formed on solid surfaces](#)
- 14:20 **WEITERING Hanno**
[Chiral Superconductivity on a Silicon Surface](#)
- 14:40 **HASEGAWA Yukio**
[2D superconductivity vs. disorder: Pb monolayer on vicinal Si\(111\) substrates](#)
- 15:00 **LIU Canhua**
[Superconductivity and Pseudo-Magnetic Field in Ca-intercalated Graphene](#)

15:20 Coffee Break (SdV)

Session 8, Chair: DE PADOVA Paola

- 15:45 Speakers:
BECHSTEDT Friedhelm
[Can Xenon be excitonic, topological and quantum spin Hall insulators?](#)
- 16:05 **FLORES Fernando**
[Giant electron phonon interaction for covalent semiconductor interfaces: Sn/Ge\(111\)-\(3x3\) and Sn/Si\(\(111\)- \$\sqrt{3}\times\sqrt{3}\$ \)](#)
- 16:25 **MASSABEAU Sylvain**
[Terahertz time-domain spectroscopy platform for spin-to-charge conversion study of spintronic emitters](#)
- 16:45 **GIMZEWSKI James**
[Nanoscale Neuromorphic Networks and Criticality: A Perspective and Outlook](#)
- 17:05 **Keynote Speaker: LEROY Frédéric**
[GeTe Ferroelectric Rashba semiconductor: from growth to electronic properties](#)
- 17:30 **Closing Remarks**