Day 1 – Tuesday 30th May 2023

| Time  | Location: Amphithéâtre Charles Flahaut - Institut de Botanique |
|-------|---------------------------------------------------------------|
| 8:00  | Badge pickup & welcome coffee                                 |
| 8:40  | BNW2023 Opening remarks – Prof Guillaume Cassabois           |
| 9:00  | Electronic and Emerging Phenomena (Chair: Guillaume Cassabois) |
| 9:00  | Invited Speaker – Hiroki Ago “Controlled CVD growth of multilayer hBN for 2.5D applications” |
| 9:30  | Invited Speaker – Aleksandra Radenovic “Nanofluidics-next frontiers with hBN” |
| 10:00 | Contributed talk - Young Duck Kim “Far/Mid UV EL from an electrically induced color center in hBN” |
| 10:20 | Contributed talk 2 - Laura Susana “Atomic scale mapping of electronic field and charge density in BN nanostructures by 4D STEM” |
| 10:40 | COFFEE BREAK                                                 |
| 11:15 | Growth 1 (Chair: Bernard Gil)                                |
| 11:15 | Invited Speaker – Jong Kyu Kim “Growth of suspended boron nitride on GaN substrate by MOCVD” |
| 11:45 | Invited Speaker – James Howard Edgar “HBN Crystal Growth from Molten Metal Solutions” |
| 12:15 | Invited Speaker – Zetian Mi “Molecular beam epitaxy of hBN and emerging device applications” |
| 12:45 | LUNCH                                                        |
| 14:00 | Defects in hBN (Chair: )                                     |
| 14:00 | Invited Speaker – Mehran Kianinia “Toward coherent single photon emission from hBN” |
| 14:30 | Invited Speaker – Isaac Luxmoore “Protection of the Spin Coherence of Defects in hBN” |
| 15:00 | Invited Speaker – Adam Gali “Defect spins and qubits in hBN from first principles theory guiding experiments” |
| 15:30 | 30 min round table with Q&A, facilitated by the chair of the session + summary of the day |
| 16:30 | Poster session & welcome reception                           |
| Time  | Location: Amphithéâtre Charles Flahaut - Institut de Botanique |
|-------|-------------------------------------------------------------|
|       | **Quantum Sensing** (Chair: Igor Aharonovich)               |
|       | **Invited Speaker** – Tongcang Li “Nuclear spin control in hBN” |
| 9:00  | **Invited Speaker** – Jean Phillipe Tetienne “Quantum sensing and imaging with spin defects in hBN” |
| 9:30  | **Invited Speaker** – Vladimir Dyakonov “Coherent Control and Sensing Applications of the Boron Vacancy in hBN” |
| 10:00 | **Invited Speaker** – Vladimir Dyakonov “Coherent Control and Sensing Applications of the Boron Vacancy in hBN” |
| 10:30 | **Contributed talk 3** - Hannah Stern “Room-temperature coherent control of single carbon-related defects in hBN” |
| 10:50 | **COFFEE BREAK**                                           |
|       | **Electronic and Emerging Phenomena 2** (Chair: )           |
| 11:15 | **Invited Speaker** – Bilu Liu “Mass-production of two-dimensional h-BN and its liquid crystals for deep UV light modulation” |
| 11:45 | **Invited Speaker** – Dmitry Golberg “Boron nitride nanotube and nanosheet properties and functions by in situ transmission electron microscopy” |
| 12:15 | **Invited Speaker** – Moshe Ben Shalom “Ladder Ferroelectricity” |
| 12:45 | **LUNCH**                                                   |
|       | **Upgraded Talks** (Chair: )                                |
| 14:00 | **Contributed talk 4** - Johannes Binder “Epitaxial HBN for Hydrogen Generation by Radiolysis of Interfacial Water” |
| 14:20 | **Contributed talk 5** - Clarisse Fournier “Two-photon interference from position-controlled quantum emitters in hBN” |
| 14:40 | **Contributed talk 6** - Anand Kumar “Fabrication and polarization dynamics of yellow single photon emitters in hBN” |
| 15:00 | **Contributed talk 7** - Tianwei Qin “Cascade phonon polaritons in mixed-dimensional vdW heterostructures for strong light-matter interactions” |
| 15:20 | **Contributed talk 8** - Rachael Keneipp “Deterministic creation & characterisation of nanopores in hBN via STEM and optical microscopy” |
| 15:40 | **30 min round table with Q&A, facilitated by the chair of the session + summary of the day** |
| 16:30 | **Poster session + Wine/Canapes**                           |
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|-------|---------------------------------------------------------------|
|       | **Growth 2**<br>(Chair: )                                    |
| 9:00  | *Invited Speaker* – Suresh Sundaram “MOVPE growth of layered boron nitride - scaling up and applications” |
| 9:30  | *Invited Speaker* – Hyeon Suk Shin “Current status and challenges in hBN growth by chemical vapor deposition” |
| 10:00 | *Invited Speaker* – Sergei Novikov “High-temperature MBE of hBN monolayers and graphene-hBN lateral heterostructures” |
| 10:30 | *Sponsor talk* – Michael Heuken (AIXTRON) “Wafer-scale (MO)CVD Synthesis of Hexagonal Boron Nitride and Graphene on Sapphire” |
| 10:50 | **COFFEE BREAK**                                             |
|       | **Polaritons & Qubits with hBN**<br>(Chair: Joshua Caldwell) |
| 11:15 | *Invited Speaker* – Aaron Sternbach “Negative refraction in hBN/MoO3 hetero-cavities and other non-intuitive optical phenomena” |
| 11:45 | *Invited Speaker* – Alexey Nikitin “Molecules-BN interaction via polaritons” |
| 12:15 | *Invited Speaker* – Joel Wang “hBN as a Low-loss Dielectric for High-performance, Small-footprint Superconducting Qubit Devices” |
| 12:45 | **LUNCH**                                                    |
| 14:00 | *Invited Speaker* – Adrien Rousseau “Polytypism in boron nitride” |
| 14:30 | *Invited Speaker* – Jonghwan Kim “Probing Deep-Ultraviolet Optoelectronic Processes in HBN” |
| 15:00 | *Invited Speaker* – Duanjun Cai “P/N type Conductions and Large-Scale Synthesis of HBN” |
| 15:30 | **30 min round table with Q&A, facilitated by the chair of the session + summary of the day** |
| 16:00 | **Concluding remarks and plans for Future hBN meetings.**   |
| 20:00 | **Gala dinner**                                              |

Day 4 – Friday 2nd June 2023

**EXCURSION : Visit of city of Nîmes and Pont du Gard**
| N° | Presenter name | Title | 
|----|----------------|---------------------------------|
| 1  | Jun Zhang      | Donor–Acceptor Pair Quantum Emitters in Hexagonal Boron Nitride |
| 2  | Chenjiang Qian | Emitter-Optomechanical Interaction in Ultra-High-Q hBN Nanocavities |
| 3  | Jian-Shun Tang | Coherent dynamics of multi-spin VB- center in hexagonal boron nitride |
| 4  | Roberto Rizzato | Extending the coherence time of spin defects in hBN enables advanced qubit control and quantum sensing |
| 5  | Hayoung Ko     | Toward non-gas-permeable hBN film growth on smooth Fe surface |
| 6  | Pierre Lechiffart | First-principles study of luminescence in hexagonal boron nitride single layer: exciton-phonon coupling and the role of substrate |
| 7  | Chanaprom Cholsuk | Fingerprinting color centers in hexagonal boron nitride for quantum technology application |
| 8  | Renu Rani      | Single photon emitters in hBN via ultra-low energy helium ion implantation |
| 9  | José Batista   | Machine Learning Assisted Calculation Of Phonon Properties In Layered hBN |
| 10 | Peng Shen      | ZnO nanorods pre-orientated by hexagonal boron nitride on copper paper for multiple applications |
| 11 | Johannes Binder | Growth of Distributed Bragg Reflectors entirely made of boron nitride |
| 12 | Kaihui Liu     | Epitaxial growth and anti-corrosion behavior of two-dimensional hBN on copper |
| 13 | Najme Ahmadi   | Design of satellite-based hBN single-photon sources for quantum communication |
| 14 | Kyung Yeol Ma  | Epitaxial growth of single-crystal hexagonal boron nitride multilayers |
| 15 | Zhongyue Wang  | Mass Production of Two-Dimensional Materials by Intermediate Assisted Grinding Exfoliation |
| 16 | Amandine Andrieux-Ledier | CVD synthesis of sp2-hybridized multilayer boron nitride films |
| 17 | Javier Martín-Sánchez | High-Q Polaritonic Resonators for Dielectric Sensing |
| 18 | Jaewook Lee    | Extending the coherence of spin qubits in hexagonal boron nitride by materials engineering: a cluster expansion theory |
| 19 | Zhiyuan Shi    | Growth of high-quality multilayered hexagonal boron nitride with the assistance of metal-B alloy |
| 20 | Wei Liu        | Temperature-Dependent Energy-Level Shifts of Spin Defects in Hexagonal Boron Nitride |
| Page | Author | Title |
|------|--------|-------|
| 21   | Hosung Seo | First-principles theory of quantum defects in hexagonal boron nitride |
| 22   | Hyeongjoon Kim | Wafer-scale growth of amorphous boron nitride thin film |
| 23   | Thibault Sohier | Remote electron-phonon and plasmon-phonon interactions in BN-encapsulated graphene |
| 24   | Rohit Babar | Boron vacancy pair in hexagonal boron nitride: a novel quantum sensor |
| 25   | Christopher Mellor | Hexagonal boron nitride films grown by high-temperature molecular beam epitaxy (HT-MBE) with intentional carbon doping |
| 26   | Giridharan Krishnamurthy | Impact of oxygen on hBN nanowalls synthesis |
| 27   | Jakub Iwanski | Tuning of hBN bandgap by aluminum alloying |
| 28   | Laura Susana | X-RAY EXCITED OPTICAL LUMINESCENCE OF BORON NITRIDE MATERIALS |
| 29   | Viktor Ivády | Symmetric carbon tetramers forming chemically stable spin qubits in hBN |
| 30   | Viktor Ivády | Decoherence and multi-spin dynamics of the VB-center in hBN |
| 31   | Martino Silvetti | Electronic and optical properties of boron nitride in the wurtzite phase |
| 32   | Simone Eizagirre Barker | Spin physics of single defects in hexagonal boron nitride |
| 33   | Oliver Powell | Optical characteristics of single-defect colour centres in hexagonal boron nitride |
| 34   | Fábio Juvêncio Ramalho Costa | Probing intrinsic properties of epitaxial monolayers of h-BN on graphite with scanning tunnelling microscopy |
| 35   | Alberto Zobelli | Electronic structure of h-BN under stacking, folding, and twisting deformations |
| 36   | Piotr Tatarczak | Impact of bubble creation on optical properties of h-BN |
| 37   | Piotr Tatarczak | Reduction of MOVPE h-BN/sapphire interaction by wrinkle formation revealed by Raman studies |
| 38   | Helen Zeng | Quantum Key Distribution Using a Room Temperature Integrated Single Photon Source in Hexagonal Boron Nitride |
| 39   | Madeline Hennessey | Fabrication of spin defects in hexagonal boron nitride by focused ion beams |
| 40   | Yongjin Cho | Epitaxial growth of hexagonal boron nitride on silicon carbide and sapphire by high-temperature molecular beam epitaxy |
| 41   | Karin Yamamura | Creation and photophysical analysis of blue single photon emitters in hexagonal Boron Nitride |
| 42   | Tristan Clua Provost | Quantum sensing with spin defects hosted in a van der Waals material |
| No. | Author               | Title                                                                                      |
|-----|---------------------|-------------------------------------------------------------------------------------------|
| 43  | Tiago Queiros       | Study of the local environment effects on hBN emitters’ fluorescence by wide-field total internal fluorescence microscopy |
| 44  | Sebastien Roux      | Surface recombinations and out of plane diffusivity of free excitons in hexagonal boron nitride |
| 45  | Ivan Zhigulin       | Insight into the nature of blue emitters in hexagonal Boron Nitride via Stark effect       |
| 46  | Falko Schmidt       | Exploring the Role of Immersion Solvents for Single Photon Emitters in Hexagonal Boron Nitride Nanoflakes |
| 47  | Nils Bernhardt      | The pursuit of deep-UV defect emitters in 2D hBN                                          |
| 48  | Nathan Ronceray     | Liquid-activated quantum emission from native hBN defects for nanofluidic sensing         |
| 49  | Seokho Moon         | Van der Waals Heterostructure of Hexagonal Boron Nitride with an AlGaN/GaN Epitaxial Wafer for High-Performance Radio-frequency Applications |
| 50  | Eveline Mayner      | Characterization and Manipulation of Interfacial-hBN Emitters                              |
| 51  | Snezana Lazic       | Strain tuned non-classical light emission from localized defect states in 2D layered semiconductors |
| 52  | Jules Fraunie       | Observation of 2D ferroelectric domains in folded hBN flakes                               |
| 53  | Ritika Ritika       | Coupling Spin Defects in a Layered Material to Nanoscale Plasmonic Cavities               |
| 54  | Onurcan Kaya        | INVESTIGATION OF THE MATERIAL PROPERTIES OF AMORPHOUS BORON NITRITE                          |
| 55  | Youan Xu            | Anisotropic hydrogel based on 2D materials with wide bandgap                                |
| 56  | Yerin Han           | Deep-ultraviolet electroluminescence in van der Waals heterostructures of hexagonal boron nitride |
| 57  | Jacek Kasprzak      | Improving optical response of layered semiconductors via hBN encapsulation                 |
| 58  | Ziyang Huang        | Magnetically tunable birefringent modulator based on inorganic LCs of 2D h-BN and natural minerals |