



**BNW2023 ~ Inaugural workshop on Boron Nitride
Montpellier, May 29th - June 2nd 2023**

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
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
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
Defects in hBN (Chair: Vladimir Dyakonov)	
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
16:00	Invited Speaker – Takashi Taniguchi “Solution growth of hBN single crystals and their residual impurity control”
16:30	Welcome reception & poster session

Day 2 – Wednesday 31st May 2023

Time	Location: Amphithéâtre Charles Flahaut - Institut de Botanique
Quantum Sensing (Chair: Igor Aharonovich)	
9:00	Invited Speaker – Tongcang Li “Nuclear spin control in hBN”
9:30	Invited Speaker – Jean Phillipe Tetienne “Quantum sensing and imaging with spin defects 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: James Howard Edgar)	
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: Hyeon Suk Shin and Sergei Novikov)	
14:00	Contributed talk 4 - Johannes Binder “Epitaxial HBN for Hydrogen Generation by Radiolysis of Interfacial Water”
14:20	Contributed talk 5 - Aymeric Delteil “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

Day 3 – Thursday 1st June 2023

Time	Location: Amphithéâtre Charles Flahaut - Institut de Botanique
Growth 2 (Chair: Takashi Taniguchi)	
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 (Chair: Joshua Caldwell)	
11:15	Invited Speaker – Aaron Sternbach “Negative refraction in hBN/MoO ₃ 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
UV/LED (Chair: Jong Kyu Kim)	
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
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Posters

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 sp ² -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
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 graphen
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 Silveti	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
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	Juliette Plo	Isotopic composition-dependent deep level emission in hexagonal boron nitride
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 NITRIDE
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
59	Subodh Kumar Gautam	Exciton Dynamics in APHT-Grown hBN Crystals Probed by Time-Resolved Cathodoluminescence
60	Paul Konrad	Optimized Irradiation Protocol for Quantum Sensors in Hexagonal Boron Nitride