Main conference
15th June (Sun.)

Tutorials

13:50–14:30
Dispersion and Structure Sorting of Single-Wall Carbon Nanotubes
*Hiromichi Kataura[1]
1. AIST until March (Japan)

~Coffee Break~

14:50–15:30
TBA
Yan Li[1]
1. Peking University (China)

~Coffee Break~

15:50–16:30
Contemporary challenges in van der Waals layered semiconductors
*Young Hee Lee[1]
1. Sungkyunkwan University (Korea)

~Coffee Break~

16:50–17:30
Tutorial: How do we analyze Raman spectra?
*Riichiro Saito[1,2]
1. Tohoku University, (Japan), 2. National Taiwan Normal University (Taiwan)

16th June (Mon.)

Keynote

09:30–10:10

Towards fab-compatible low-dimensional semiconductor electronics

*Lian-Mao Peng[1]
1. Peking University (China)

10:10-10:40 (*Invited*)

Carbon nanotube-based flexible amplifier

*Youfan Hu[1]
1. Peking University (China)

~Coffee Break~

11:00-11:30 (*Invited*)

TRANSFORMING PRECURSOR MOLECULES INTO 1D CARBON NANOMATERIALS INSIDE CARBON NANOTUBES

Huiju Cao[1], Yingzhi Chen[1], Kunpeng Tang[1], Yanghao Feng[1], Weili Cui[1], Wendi Zhang[2], Kecheng Cao[2], *Lei Shi[1]
1. Sun Yat-sen University (China), 2. ShanghaiTech University (China)

11:30–11:50

Confined carbyne is a tailored hybrid system with vibronic properties solely driven by anharmonic interactions.

*Thomas Pichler[1]
1. University of Vienna (Austria)

11:50–12:10

BNNT as molecular template : from single molecule chains to superradiant light emitters

Jean-Baptiste Marceau[1], Juliette Le Balle[1,2], Duc-Minh Ta[4], Alberto Aguilar[4], Annick Loiseau[2], Richard Martel[5], Pierre Bon[4], Raphael Voituriez[3], Gaelle Recher[1], *Etienne Gaufrès[1]
1. CNRS-Université de Bordeaux (France), 2. CNRS-Onera (France), 3. Sorbonne University (France), 4. CNRS-University of Limoges (France), 5. Université de Montréal (Canada)

17th June (Tue.)

Keynote

09:30–10:10

Exciton transfer and interface excitons in mixed-dimensional heterostructures

Nan Fang[1], Yih-Ren Chang[1], Shun Fujii[1,2], Daiki Yamashita[1,3], Mina Maruyama[4], Yanlin Gao[4], Chee Fai Fong[1], Daichi Kozawa[5], Keigo Otsuka[6], Kosuke Nagashio[6], Susumu Okada[4], *Yuichiro K. Kato[1]

1. RIKEN (Japan), 2. Keio Univ. (Japan), 3. AIST (Japan), 4. Univ. of Tsukuba (Japan), 5. NIMS (Japan), 6. Univ. of Tokyo (Japan)

10:10–10:40 (*Invited*)

READOUT OF TRIPLET STATES IN SP^3-FUNCTIONALIZED CARBON NANOTUBES BY OPTICALLY-DETECTED MAGNETIC RESONANCE

J. Alejandro de Sousa[1,2], Simon Settele[3], Timur Biktagirov[4], Uwe Gerstmann[4], Etienne Goovaerts[1], Jana Zaumseil[3], Nuria Crivillers[2], *Sofie Cambré[1]

1. Theory and Spectroscopy of Molecules and Materials, University of Antwerp (Belgium), 2. Institut de Ciència de Materials de Barcelona (Spain), 3. Institute for Physical chemistry, Universität Heidelberg (Germany), 4. Lehrstuhlfür Theoretische Material physik, Universität Paderborn (Germany)

~Coffee Break~

11:00-11:30 (*Invited*)

Computational modeling and design of DNA-carbon nanotube sensors of small molecular analytes

*Lela Vukovic[1]

1. University of Texas at El Paso (United States of America)

11:30–11:50

Chirality-Dependent Kinetics of Single-Walled Carbon Nanotubes from Machine-Learning Force Fields

*Sida Sun[1], Shigeo Maruyama[2], Yan Li[1]

1. Peking University (China), 2. The University of Tokyo (Japan)

11:50–12:10

DUV-Raman and photoluminescence studies of SWNT@BNNT hetero-nanotubes

*Hsiang-Lin Liu[1], Shigeo Maruyama[2], Riichiro Saito[1,3]

1. National Taiwan Normal University (Taiwan), 2. The University of Tokyo (Japan), 3. Tohoku University (Japan)

18th June (Wed.)

Keynote

09:30–10:10

Ultra-clean interfaces in atomically thin materials for electronics

*Manish Chhowalla[1]

1. University of Cambridge (UK)

10:10–10:40 (*Invited*)

Flexoelectricity in Self-Assembled Graphene Nanowrinkles

Sathvik Ajay Iyengar[2,3], James G McHugh[3], Jonathan P Salvage[4], Alan Dalton[5], Manoj Tripathi[5], P M Ajayan[2], *Vincent Meunier[1]

1. The Pennsylvania State University (United States of America), 2. Rice University (United States of America), 3. University of Manchester (UK), 4. University of Brighton (UK), 5. University of Sussex (UK)

~Coffee Break~

Special Session

11:00–12:10

19th June (Thu.)

Keynote

09:30–10:10
Luminescent Defects in Single-Wall Carbon Nanotubes: Chemistry & Applications
*Jana Zaumseil[1]
1. Heidelberg University (Germany)

10:10–10:40 (*Invited*)
Electroluminescence From Monochiral Carbon Nanotubes With Quantum Defects
*Ralph Krupke[1]
1. Institute of Nanotechnology, Karlsruhe Institute of Technology (Germany)

~Coffee Break~

11:00–11:30 (*Invited*)
Infrared Image Sensor using Carbon Nanotubes
*Ryota Yuge[1,2], Tomo Tanaka[1,2], Masahiko Sano[1], Noriyuki Tonouchi[1,2], Akinobu Shibuya[1,2], Taizo Shibuya[1,2], Masataka Noguchi[1,2], Toshie Miyamoto[1,2], Naoki Oda[1]
1. NEC Corporation (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan)

11:30–11:50
Nanofluidic transport in narrow single-wall carbon nanotube pores
*Aleksandr Noy[1]
1. Lawrence Livermore National Laboratory (United States of America)

11:50–12:10
Thermal rectification using Tesla valve structure in graphite microribbon
*Masahiro Nomura[1,3], Roman Anufriev[2,3], Laurent Jalabert[3], Kenji Watanabe[4], Takashi Taniguchi[4], Sebastian Volz[3]
1. The University of Tokyo (Japan), 2. Universite de Lyon (France), 3. LIMMS, CNRS-IIS UTokyo (Japan), 4. NIMS (Japan)

20th June (Fri.)

Keynote

09:30–10:10
Synthesis and Characterization of Janus Transition Metal Dichalcogenide Materials
*Jing Kong[1]
1. MIT (United States of America)

10:10–10:40 (*Invited*)
Synthesis and scalable transfer of research-grade CVD graphene
James Hone[1]
1. Columbia University (United States of America)

~Coffee Break~

11:00–11:30 (*Invited*)
CARBON-BASED MULTI-VIEW TERAHERTZ AND INFRARED IMAGERS
*Yukio Kawano[1,2,3], Kou Li[1]
1. Chuo University (Japan), 2. National Institute of Informatics (Japan), 3. Kanagawa Institute of Industrial Science and Technology (Japan)

11:30–11:50
Stepwise Engineering of van der Waals Heterostructures for High Current Density in Light Emitting Devices
Rei Usami[1], Koshi Oi[1], Keisuke Yamada[1], Jiang Pu[2], Hao Ou[2], Takahiko Endo[3], Yasumitsu Miyata[3], *Taishi Takenobu[1]
1. Nagoya University (Japan), 2. Institute of Science Tokyo (Japan), 3. Tokyo Metropolitan University (Japan)

11:50–12:10
CARBON AND BORON NITRIDE MATERIALS: BASIC SCIENCE AND BROADER IMPACT
*Rodney Ruoff[1,2]
1. IBS CMCM (Korea), 2. UNIST (Korea)

Parallel Symposia

Synthesis
16th June (Mon.)

14:00–14:40 (*Overview*)
NEW SYNTHESES OF GRAPHENE AND DIAMOND
*Rodney Ruoff[1]
1. UNIST and IBS CMCM (Korea)

14:40–15:00 (*Invited*)
Commonalities and Peculiarities in Growth of (Quasi-) One Dimensional Materials and Perspectives of Their Novel Applications
*Avetik R. Harutyunyan[1], Xufan Li[1], Shuang Wu[1]
1. Honda Research Institute USA Inc. (United States of America)

15:00–15:20 (*Invited*)
Synthesis of Diamond in Liquid Metal at 1 Atmosphere Pressure
*Da Luo[1]
1. The Chinese University of Hong Kong, Shenzhen (China)

~Coffee Break~

16:00–16:20 (*Invited*)
Synthesis and Electronic Applications of Wafer-Scale 2.5D Materials
*Hiroki Ago[1]
1. Kyushu University (Japan)

16:20–16:40
Orienting-Stitched Graphene is Permeable
Zhien Wang[2], Chi Cheng[3], *Jiangtao Wang[1], Jing Kong[2]
1. Peking University (China), 2. Massachusetts Institute of Technology (United States of America), 3. The University of New South Wales (Australia)

16:40–17:00
Highly efficient weakly confined carbyne (wCC) synthesis inside single-walled carbon nanotubes (SWCNTs)
*Bowen Zhang[1], Xiyang Qiu[1], Wanyu Dai[1], Qingmei Hu[1], Yongjia Zheng[2], Aina Fitó-Parer[3], Dmitry I. Levshov[3], Keigo Otsuka[1], Shohei Chiashi[1], Rong Xiang[2], Feng Yang[4], Yan Li[5], Sofie Cambré[3], Shigeo Maaruyama[1]
1. University of Tokyo (Japan), 2. Zhejiang University (China), 3. University of Antwerp (Belgium), 4. Southern University of Science and Technology (China), 5. Peking University (China)

17:00–17:20
Solving the Secondary Nucleation Problem that Causes Misoriented Islands during the Wafer-Scale Epitaxy of Single-Crystal Graphene on Ge
*Michael S. Arnold[1]
1. University of Wisconsin-Madison (United States of America)

17th June (Tue.)

14:00–14:20 (*Invited*)
Salt-Assisted Growth of Transition Metal Dichalcogenide Nanotubes: Mechanisms from Molecular Dynamics
*Alister J Page[1], Daniel S Vadseth[1], Shigeo Maruyama[2]
1. University of Newcastle (Australia), 2. Tokyo University (Japan)

14:20–14:40
Transforming the Synthesis of Carbon Nanotubes with Machine Learning Models and Automation
*Yue Yuri Li[1], Liu Qian[1], Jin Zhang[1]
1. Peking University (China)

14:40–15:00
An Autonomous, Closed Loop Experimentation system for Floating Catalyst Carbon Nanotube Synthesis
*Arthur William Newton Sloan[1,2], Morgen Smith[1,3,4], Robert Waelder[1,4], John Bulmer[1,2], Rahul Rao[1], Benji Maruyama[1]
1. Air Force Research Laboratory (United States of America), 2. National Research Council (United States of America), 3. Kansas State University (United States of America), 4. BlueHalo LLC (United States of America)

15:00–15:20 (*Invited*)
Carbon Nanotube Synthesis Mechanism for Deep-Injection Floating Catalyst Chemical Vapor Deposition
Raj Kumar[1,2], Ji Hong Park[1], Seung-Yeol Jeon[1,2], Young Shik Cho[1], *Seung Min Kim[1,2]
1. Korea Institute of Science and Technology (Korea), 2. Jeonbuk National Univ. (Korea)

~Coffee Break~

16:00–16:20 (*Invited*)
High-speed screening of growth conditions for carbon nanotube thin films using an aerosol jet printing system
*Keigo Otsuka[1], Ryuji Fujiwara[1], Shigeo Maruyama[1]
1. The University of Tokyo (Japan)

16:20–16:40
Synthesis of boron nitride nanotubes and applications into electrochemical catalysis
*Myung Jong Kim[1]
1. Gachon University (Korea)

16:40–17:00
Controlled Synthesis of Single-Walled Carbon Nanotubes: Microplasma-Assisted Multi-Step Reactor and Catalyst Precursor Effects
*Guohai Chen[1], Takashi Tsuji[1], Jinping He[1], Maho Yamada[1], Yoshiki Shimizu[1], Hajime Sakakita[1], Kenji Hata[1], Don N. Futaba[1], Shunsuke Sakurai[1]
1. AIST (Japan)

17:00–17:20
Aerosol CVD Carbon Nanotube Thin Films: From Synthesis to Advanced Applications

*Ilya V. Novikov[1], Dmitry V. Krasnikov[2], Albert G. Nasibulin[2], Il Jeon[1]
1. Sungkyunkwan University (Korea), 2. Skolkovo Institute of Science and Technology (Russia)

19th June (Thu.)

14:00–14:20 (*Invited*)
Ultra-Pure Synthesis of (6,5) Carbon Nanotubes with Multiphase Catalysts
*Toshiaki Kato[1]
1. Tohoku Univ. (Japan)

14:20–14:40
Catalytic rapid Joule heating synthesis of carbon nanotubes in seconds
*Jian Sheng[1], Yifan Xu[1], Yan Li[1]
1. Peking University (China)

14:40–15:00
Synthesis and Characterization of One-Dimensional van der Waals Heterostructures with Radial, Axial and Alloy Configurations
*Yongjia Zheng[1], Wanyu Dai[2], Akihito Kumamoto[3], Yuta Sato[4], Keigo Otsuka[2], Qiang Zhang[5], Esko I. Kauppinen[5], Yuichi Ikuhara[3], Kazu Suenaga[6], Shigeo Maruyama[2], Rong Xiang[1]
1. State Key Laboratory of Fluid Power and Mechatronic Systems, School of Mechanical Engineering, Zhejiang University (China), 2. Department of Mechanical Engineering, The University of Tokyo (Japan), 3. Institute of Engineering Innovation, The University of Tokyo (Japan), 4. Nanomaterials Research Institute, AIST (Japan), 5. Department of Applied Physics, Aalto University School of Science (Finland), 6. The Institute of Scientific and Industrial Research (ISIR), Osaka University (Japan)

15:00–15:20
Preparation of Highly Ordered CNT Fiber and Its Application on Nanofiltration
*Xiao Zhang[1], Weiya Zhou[1], Huaping Liu[1], Michael De Volder[2], Adam Boies[2]
1. Institute of Physics, Chinese Academy of Sciences (China), 2. Department of Engineering, University of Cambridge (UK)

~Coffee Break~

16:00–16:20 (*Invited*)
Oxidation Saturation in Carbon Nanotubes: General Understanding of Functionalization Methods
*Minfang Zhang[1], Mei Yang[1], Makoto Yaguchi[1], Hirokuni Jintoku[1], Shunsuke Sakurai[1], Don Futaba[1]
1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan)

16:20–16:40 (*Invited*)
Confined Assembling Chemistry within Single-Walled Carbon Nanotubes
*Feng Yang[1]
1. Southern University of Science and Technology (China)

16:40–17:00

Precise Partitioning of Single-Wall Carbon Nanotubes and Enantiomers Through Aqueous Two-Phase Extraction

*Han Li[1], Ming Zheng[2], Jeffrey Fagan[2]
1. University of Turku (Finland), 2. National Institute of Standards and Technology (United States of America)

17:00–17:20

Quantifying Enantiomeric Purity Of Sorted Single-Walled Carbon Nanotubes Using Combined Chiroptical Spectroscopy And Hyperspectral Fluorescence Microscopy

Miguel Ángel López Carrillo[1], Filip Desmet[1], Maksiem Erkens[2], Jeffrey A. Fagan[3], Ming Zheng[3], Han Li[4,5], Benjamin S. Flavel[4], Wim Wenseleers[2], Wouter Herrebout[1], Sofie Cambré[1], *Dmitry Levshov[1]
1. Theory and Spectroscopy of Molecules and Materials, Department of Chemistry and Department of Physics, University of Antwerp, Antwerp (Belgium), 2. Nanostructured and Organic Optical and Electronic Materials, Department of Physics, University of Antwerp, Antwerp (Belgium), 3. Materials Science and Engineering Division, National Institute of Standards and Technology (United States of America), 4. Institute of Nanotechnology, Karlsruhe Institute of Technology (Germany), 5. Department of Mechanical and Materials Engineering, University of Turku (Finland)

Energy & Electronics
16th June (Mon.)

14:00–14:40 (*Overview*)
Recent Advances towards High-Performance Carbon Nanotube FETs
*Nathaniel Safron[1], Matthias Passlack[1], Hsin-Yuan Chiu[2], Tzu-Ang Chao[2], Carlo Gilardi[1], H.-S. Philip Wong[2], Marvin M.-F. Chang[2], Gregory Pitner[1], Iuliana Radu[2]
1. TSMC Corporate Research (United States of America), 2. TSMC Corporate Research (Taiwan)

14:40–15:00 (*Invited*)
Exploring aligned CNT material for device application: variability and polymer cleaning
*Marina Y. Timmermans[1], Luca Mana[1,2], Himanshu Sharma[1], Dennis Lin[1], Jean-François de Marneffe[1], Patrick Kelp[1], Atefeh Fathzadeh[1,2], Philippe Bezard[1], Xiangyu Wu[1], Han Han[1], Lijun Liu[1,2], Katherine R. Jinkins[3], Michael S. Arnold[3], Claudia Fleischmann[1,2], Steven Brems[1], Cesar J. L. de la Rosa[1], Gouri S. Kar[1]
1. imec (Belgium), 2. KU Leuven (Belgium), 3. SixLine Semiconductor (United States of America)

15:00–15:20 (*Invited*)
Nanomaterials-based Monolithic 3D Integration for Energy-Efficient Computing
*Jianshi Tang[1]
1. School of Integrated Circuits, Tsinghua University (China)

~Coffee Break~

16:00–16:20 (*Invited*)
CNT sorting using block copolymers and removal of wrapped polymers from CNTs for improved electrical performance
*Sean Foradori[1], Stephanie Oliveras-Santos[1], Nilabja Maity[1], Michael S Arnold[1], Padma Gopalan[1]
1. University of Wisconsin – Madison (United States of America)

16:20–16:40 (*Invited*)
Preparation of Single-Walled Carbon Nanotubes as Electronic Materials
*Yan Li[1,2]
1. Beijing National Laboratory for Molecular Science, College of Chemistry and Molecular Engineering, Peking University (China), 2. Institute of Carbon-Based Thin Film Electronics, Peking University (China)

16:40–17:00 (*Invited*)
Interface properties of carbon nanotube thin film transistors
*Yutaka Ohno[1]
1. Nagoya University (Japan)

17:00–17:20
High-Performance N-type Aligned Carbon Nanotube Field-Effect Transistors and Their Scaling Behavior
*Yu Cao[1]
1. Peking University (China)

17th June (Tue.)

14:00–14:20 (*Invited*)
Transparent, Conductive Carbon Nanotube Thin Films via Direct, Dry Deposition from the Floating Catalyst Chemical Deposition Synthesis
*Esko Ilmari Kauppinen[1]
1. Department of Applied Physics, Aalto University School of Science, (Finland)

14:20–14:40
Preparation and Electrocatalytic Property of Integrated W_2C Nanowires @ Single-Walled Carbon Nanotubes Films
*Feng Zhang[1], Chang Liu[1]
1. Institute of Metal Research, Chinese Academy of Sciences (China)

14:40–15:00
Advancing Energy Applications with WSe_2 Based Materials: Doping and Hybridization Strategies
*Antonia Kagkoura[1], Zdeněk Sofer[1]
1. University of Chemistry and Technology, Prague (Czech Republic)

15:00–15:20
Exploiting the Unique Properties of MXenes for Hydrogen Production via Dry Reforming of Methane
Joshua O Ighalo[1], AmirMohammad Ebrahimi[1], Davood B Pourkargar[1], *Placidus B Amama[1]
1. Kansas State University (United States of America)

~Coffee Break~

16:00–16:20 (*Invited*)
Highly Conductive Carbon Nanotube Fibers
Haozike Wang[1], Zhaoqing Gao[1], Pengxiang Hou[1], *Chang Liu[1]
1. Institute of Metal Research, Chinese Academy of Sciences (China)

16:20–16:40
Synthesis of advanced carbon material graphdiyne and their applications in sustainable energy
*Xin Gao[1]
1. Peking University (China)

16:40–17:00
Insights into the mechanism of carbon nanotubes in silicon-based anodes
*Ziying He[1], Fei Wei[1]
1. Tsinghua University (China)

17:00–17:20
Fabrication and Performance Evaluation of Lithium-Sulfur Pouch Cells
*Mariam Ezzedine[1], Costel Sorin Cojocaru[1]
1. LPICM-Ecole Polytechnique (France)

19th June (Thu.)

14:00–14:40 (*Overview*)
MIXED-DIMENSIONAL HETEROSTRUCTURES FOR ELECTRONIC AND ENERGY TECHNOLOGIES
*Mark Hersam[1]
1. Northwestern University (United States of America)

14:40–15:00
Automated processing and transfer of two-dimensional materials with robotics
*Yixuan Zhao[1]
1. Peking university (China)

15:00–15:20
Single-Walled Carbon Nanotubes in Artificial Photosynthesis
*Yutaka Takaguchi[1], Linh Thi Pham[1], Kazushi Mukai[1], Kazutaka Gomado[1]
1. University of Toyama (Japan)

~Coffee Break~

16:00–16:20 (*Invited*)
Semiconducting Carbon Nanotube-Polythiophene Composites Showing Large Thermoelectric Power Factors
*Yoshiyuki Nonoguchi[1]
1. Kyoto Inst. Tech. (Japan)

16:20–16:40
Suspended carbon nanotube quantum dot heat engines
*Frederik van Veen[1,2], Jordi Picó Cortés[3], Seoho Jung[4], Bhaskar Ghawri[1], Natanael Lanz[4], Marko Nikolic[4], Andre Butzerin[4], Luca Ornago[4], Michel Calame[1,6], Andrea Donarini[3], Milena Grifoni[3], Herre van der Zant[5], Maria El Abbassi[4], Mickael Perrin[1,2]
1. Transport at Nanoscale Interfaces Laboratory, Empa (Switzerland), 2. Department of Information Technology and Electrical Engineering, ETH Zurich (Switzerland), 3. Institute for Theoretical Physics, University of Regensburg (Germany), 4. Chiral Nano AG (Switzerland), 5. Delft University of Technology (Netherlands), 6. Department of Physics, University of Basel, (Switzerland)

16:40–17:00
STRUCTURE-DEFINED THERMOELECTRIC PERFORMANCE OF THIN SINGLE-WALLED CARBON NANOTUBE FILMS
*Dmitry V. Krasnikov[1], Jiraphat Khongthong[1], Nikita I. Raginov[1], Anastasia E. Goldt[1], Vladislav A. Kondrashov[1], Albert G. Nasibulin[1]
1. Skolkovo Institute of Science and Technology (Russia)

17:00–17:20
SiO-$LiNi_{0.8}Co_{0.1}Mn_{0.1}O_2$ Full Cell Realized by Three-Dimensional Current Collectors of Carbon Nanotubes
*Tomotaro Mae[1], Suguru Noda[1]
1. Waseda University (Japan)

Computation and Theory
16th June (Mon.)

14:00–14:40 (*Overview*)
Moiré Band Engineering in Twisted Trilayer Transition Metal Dichalcogenide
Naoto Nakatsuji[1], Takuto Kawakami[1], Hayato Tateishi[2], Koichiro Kato[2], *Mikito Koshino[1]
1. University of Osaka (Japan), 2. Kyushu University (Japan)

14:40–15:00
Theoretical prediction of magnetic interaction at homo- or hetero-interfaces of two-dimensional materials
*Cong Wang[1], Wei Ji[1]
1. Renmin University of China (China)

15:00–15:20 (*Invited*)
Theory of Sigma Bond Resonance in Flat Boron Materials
*Lu Qiu[1], Feng Ding[2]
1. City University of Hong Kong (Hong Kong), 2. Suzhou Laboratory (China)

~Coffee Break~

16:00–16:40 (*Overview*)
An Overview of Machine Learning Force Fields for Nanotube Growth Simulations
*Daniel Hedman[1]
1. Center for Multidimensional Carbon Materials (CMCM), Institute for Basic Science (IBS) (Korea)

16:40–17:00
Growth Simulations of Single-Walled Carbon Nanotubes Using Carbon Monoxide with Machine-Learning Force Fields
*Sida Sun[1], Yan Li[1]
1. Peking University (China)

17:00–17:20
Oxygen modulates the catalytic activity of iron for CNT Nucleation
*Ben McLean[1], Alister J. Page[2], Feng Ding[3]
1. RMIT University (Australia), 2. University of Newcastle (Australia), 3. Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences (China)

17th June (Tue.)

14:00–14:40 (*Overview*)
Many-body interactions in optical properties of low-dimensional materials
*Vasili Perebeinos[1]
1. University at Buffalo (United States of America)

14:40–15:00

Contacts to Low-Dimensional Semiconductors: Physics-Based Analytical Model
*Jimmy Qin[1], H. S. Philip Wong[1]
1. Stanford University (United States of America)

15:00–15:20 (*Invited*)
ELECTRONIC STRUCTURES OF THIN FILMS OF ATOMIC LAYER MATERIALS
*Mina Maruyama[1]
1. University of Tsukuba (Japan)

~Coffee Break~

16:00–16:20 (*Invited*)
Simulating CVD Carbon Nanotube Growth on Alloy Nanoparticles
*Alister J Page[1]
1. University of Newcastle (Australia)

16:20–16:40
Transient C-O single bond by femtosecond laser on graphene oxide studied by the time-dependent density functional theory
*Yoshiyuki Miyamoto[1], Tokutaro Komatsu[2]
1. National Institute of Advanced Industrial Science and Technology (Japan), 2. School of Medicine, Nihon University (Japan)

16:40–17:00
Topological Design of Low-Dimensional Carbon Materials for Novel Spintronics - Carbon Nanotubes in the Natural Helical Crystal Lattice Scheme
*Elise Yu-Tzu Li[1]
1. National Taiwan Normal University (Taiwan)

17:00–17:20 (*Invited*)
Exascale transport simulations for the understanding of the switching mechanism in atomically thin memristors
*Liangbo Liang[1], Wenchang Lu[2], Jameela Fatheema[3], Emil Briggs[2], Deji Akinwande[3], Jerzy Bernholc[2], Panchapakesan Ganesh[1]
1. Oak Ridge National Lab (United States of America), 2. North Carolina State University (United States of America), 3. The University of Texas at Austin (United States of America)

NanoBio
16th June (Mon.)

14:00–14:40 (*Overview*)
Near-infrared fluorescence probe using oxygen-doped carbon nanotubes and carbon nanotube degradation for safety
*Toshiya Okazaki[1]
1. AIST (Japan)

14:40–15:00 (*Invited*)
Short-wave infrared fluorescence cytometry
*Ching-Wei Lin[1], Te-I Liu[1], Jhih-Shan Wang[1,2,5], Ai-Phuong Nguyen[1,3], Marco Raabe[1], Carlos Jose Quiroz Reyes[1,4], Chih-Hsin Lin[4]
1. Academia Sinica (Taiwan), 2. National Taiwan University (Taiwan), 3. National Tsing Hua University (Taiwan), 4. Taipei Medical University (Taiwan), 5. University of Stuttgart (Germany)

15:00–15:20
Imaging oxytocin signaling in prairie voles to study social relationships with carbon nanotube based fluorescent sensors
*Natsumi Komatsu[1], Alexis Marie Black[1], Devanand Manoli[2], Annaliese Beery[1], Markita Landry[1]
1. University of California, Berkeley (United States of America), 2. University of California, San Francisco (United States of America)

~Coffee Break~

16:00–16:20 (*Invited*)
Carbon Nanomaterials as Nanocarriers and Optical Nanosensors for Plant Biotechnology
*Tedrick Thomas Salim Lew[1], Biao Huang[1], Suppanat Puangpathumanond[1]
1. National University of Singapore (Singapore)

16:20–16:40 (*Invited*)
Pattern Recognition-derived Optical SWCNT Nanosensor Array for Liquid Biopsy
*Sanghwa Jeong[1], Dakyeon Lee[1]
1. Pusan National University (Korea)

16:40–17:00
Using Molecular Probe Adsorption (MPA) to Characterize the Nanoparticle Corona Phase and Molecular Recognition
*Gabriel Sánchez-Velázquez[1], Duc Thinh Khong[2], Minkyung Park[1], Xiaojia Jin[1], Zhe Yuan[1], Xun Gong[1], Mervin Chun-Yi Ang[2], Michael S Strano[1,2]
1. Department of Chemical Engineering, Massachusetts Institute of Technology (United States of America), 2. Disruptive & Sustainable Technologies for Agricultural Precision IRG, Singapore-MIT Alliance for Research and Technology (Singapore)

19th June (Thu.)

14:00–14:40 (*Overview*)
Functionally Programmed Medical Nanodevices for Cancer
*Naoki Komatsu[1]
1. Kyoto University (Japan)

14:40–15:00 (*Invited*)
Engineered Muti-Walled Carbon Nanotubes for tumor microenvironment modulation and melanoma metastasis suppression
*LORENA GARCÍA HEVIA[1], Rym Soltani[2], Jesús González[3], Olivier Chaloin[2], Cecilia Ménard-Moyon[2], Alberto Bianco[2], Mónica L. Fanarraga[3]
1. CINBIO, UNIVERSITY OF VIGO, IISGS (Spain), 2. University of Strasbourg (France), 3. Universidad de Cantabria-IDIVAL (Spain)

15:00–15:20 (*Invited*)
Evidence-based, systematic design of machine perception nanosensors for disease detection
*Mijin Kim[1]
1. Georgia Institute of Technology (United States of America)

~Coffee Break~

16:00–16:20
Wrapping Polymer-dependent Microenvironment Responses of Near-infrared Photoluminescence from Color Centers in Single-walled Carbon Nanotubes
*Tomohiro Shiraki[1,2], Yoshiaki Niidome[1], Ryo Hamano[1], Hiromu Matsumoto[1], Koichiro Kato[1,3], Tsuyohiko Fujigaya[1,2,3]
1. Dept. of Applied Chem., Kyushu Univ. (Japan), 2. WPI-I2CNER, Kyushu Univ. (Japan), 3. CMS, Kyushu Univ. (Japan)

16:20–16:40
Toward Non-Invasive Real-Time Detection of Neurotransmitters and Hormones Using Near-Infrared Fluorescent Graphene Quantum Dot
*Anton Naumov[1], Floyd Wormley[1], Alina Valimukhametova[1], Natalia Castro Lopez[1], Alyssa Dickens[1], Pramita Sharma[1]
1. Texas Christian University (United States of America)

16:40–17:00
The Design and Application of Carbon Dots-Based Prodrug Conjugates
*Jia-Yaw Chang[1]
1. National Taiwan University of Science and Technology (Taiwan)

Macromaterials
17th June (Tue.)

14:00–14:20 (*Invited*)
MESOPOROUS 3-D GRAHENE MATERIALS FOR ENERGY STORAGE
*Hirotomo Nishihara[1]
1. Tohoku University (Japan)

14:20–14:40 (*Invited*)
Application of 2D carbon materials in water: adsorption of dyes and viruses
*Yuta Nishina[1]
1. Okayama University (Japan)

14:40–15:00 (*Invited*)
2D Materials for Post-AI Era: Smart Fibers, Soft Robotics & Single Atom Catalysts
*Sang Ouk Kim[1]
1. Materials Science & Engineering, KAIST (Korea)

15:00–15:20
Shaping MXenes: Templated Guided Synthesis Using Carbon Fibers
*Filipa M. Oliveira[1], Zdenek Sofer[1], Jesus Gonzalez-Julian[2]
1. University of Chemistry and Technology Prague (Czech Republic), 2. CNRS - Laboratory of Thermo-Structural Composites (LCTS) (France)

~Coffee Break~

16:00–16:20 (*Invited*)
A Universal Framework for Ultra-Sensitive Pressure Sensing Enabled by Electric Double-Layer Charge Redistribution Mechanism
*Ming XU[1], Huajian Li[1]
1. Huazhong University of Science and Technology (China)

16:20–16:40
Progress in CNT Pellicle Development and Future Prospects
*Yosuke Ono[1]
1. Mitsuichemicals, Inc. (Japan)

16:40–17:00
Nanofiller effect of single-walled carbon nanotube bundles to elongate and toughen cellulose fibers
*Kazufumi Kobashi[1], Takahiro Morimoto[1], Minfang Zhang[1], Takushi Sugino[1], Toshiya Okazaki[1], Junya Tsujino[2], Hideki Kajita[2], Yasuyuki Isojima[2], Yasuo Gotoh[3]
1. National Institute of Advanced Industrial Science and Technology (Japan), 2. Omikenshi Co., Ltd. (Japan), 3. Shinshu University (Japan)

17:00–17:20 (*Invited*)
A New Conductive Network in Concrete: Interfacial Nanoengineering by Graphene
*Jing Zhong[1]
1. Harbin Institute of Technology (China)

19th June (Thu.)

14:00–14:40 (*Overview*)
Multifunctional Carbon Nanotube Films for Advanced Protective Applications
*Qingwen Li[1]
1. Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences (China)

14:40–15:00
Large-area and long-length single-wall carbon nanotube transparent conductive film strengthened by carbon welding
*Peng-Xiang Hou[1], Yi-Ming Zhao[1], Chang Liu[1], Hui-Ming Cheng[2]
1. Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences (China), 2. Shenzhen Key Laboratory of Energy Materials for Carbon Neutrality, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences (China)

15:00–15:20 (*Invited*)
Aerosol-synthesized Surfactant-free Single-walled Carbon Nanotube-based chemical sensors: Unprecedentedly High Sensitivity, Fast Recovery, and In-fluid (transformer oil) Applicability
*IL JEON[1]
1. Sungkyunkwan University (SKKU) (Korea)

~Coffee Break~

16:00–16:20 (*Invited*)
Unlocking the Full Potential of Carbon Nanotubes: A Trans-Scale Approach from Nanoscale to Macroscale
*Yasuhiko Hayashi[1], Hiroo Suzuki[1]
1. Okayama University (Japan)

16:20–16:40
Electrical and Thermal Properties of Aligned CNT Materials at Extreme Temperatures
*Kadyn Tackett[1], Brice Hall[1], Jake Blue[1], Sabrina Eddy[1], Timothy Haugan[1], John Bulmer[1,2]
1. Air Force Research Laboratory (United States of America), 2. National Research Council (United States of America)

16:40–17:00
High-performance carbon nanotube fiber actuators driven by electrochemical intercalation
*Jiangtao Di[1]
1. Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences (China)

Fundamental Properties
16th June (Mon.)

14:00–14:20 (*Invited*)
Valley-Hybridized Gate-Tunable 1D Exciton Confinement in $MoSe_2$
*Antoine RESERBAT-PLANTEY[1]
1. Université Côte d'Azur, CNRS, CRHEA. (France)

14:20–14:40
ISOTOPE ENGINEERING OF TRANSITION METAL DICHALCOGENIDES
Rahul Kesarwani[1,2], Vaibhav Varade[1], Artur Slobodeniuk[1], Martin Kalbac[2], *Jana Kalbacova Vejpravova[1]
1. Charles University (Czech Republic), 2. J Heyrovsky Institute (Czech Republic)

14:40–15:00
Collective optical states in one- and two-dimensional molecular lattice
*Sabrina Juergensen[1], José A. Arcos Pareja[1], Chantal Mueller[1], Jean-Baptiste Marceau[2], Niclas S. Mueller[3], Nikolai Severin[4], Eduardo B. Barros[5,6], Patryk Kusch[1], Antonio Setaro[1,7], Jürgen P. Rabe[4], Etienne Gaufrès[2], Stephanie Reich[1]
1. Freie Universität Berlin (Germany), 2. Université de Bordeaux (France), 3. Fritz-Haber-Institut, Berlin (Germany), 4. Humboldt Univerität zu Berlin (Germany), 5. Federal University of Ceará, Fortaleza (Brazil), 6. Technische Universität Berlin (Germany), 7. Pegaso University (Italy)

15:00–15:20
Raman Spectroscopy of Twisted Graphene
*Lianming Tong[1]
1. Peking University Shenzhen Graduate School (China)

~Coffee Break~

16:00–16:20 (*Invited*)
Moiré effects and dielectric coupling in one-dimensional heterostructures
*Georgy Gordeev Gordeev[1,2]
1. University of Luxembourg (Luxembourg), 2. Freie Universität Berlin (Germany)

16:20–16:40
Free Carrier Infrared Response of Intrinsic and Doped Carbon Nanotubes
Daniel Noll[1], Klaus Eckstein[1], Taras Abramovic[1], Friedrich Schöppler[1], Han Li[2], *Tobias Hertel[1]
1. Institute of Physical and Theoretical Chemistry (Germany), 2. Turku University (Finland)

16:40–17:00
MAGNETIC FIELD EFFECT ON QUATERNION EXCITONIC COMPLEXES IN BILAYER STRUCTURES NEAR METALS
*Igor V Bondarev[1], David W Snoke[2]
1. North Carolina Central University (United States of America), 2. University of Pittsburgh (United States of America)

17:00–17:20

Superconducting Diodes Based on the Structural Design of $NbSe_2$
*Zhaolong Chen[1], Jinpei Zhao[2], Konstantin Novoselov[2]
1. Peking University ShenZhen Graduate School (China), 2. National University of Singapore (China)

17th June (Tue.)

14:00–14:40 (*Overview*)
TEM-EELS of low-D materials combining high energy and momentum resolution
*Thomas Pichler[1]
1. University of Vienna (Austria)

14:40–15:00
Energy transfer in mixed-dimension heterostructures based on super-radiant Dyes@BNNT and 2D semiconductors
*Juliette Le Balle[1,2], Jean-Baptiste Marceau[2], Frédéric Fossard[1], Gaëlle Recher[2], Annick Loiseau[1], Etienne Gaufrès[2]
1. Université Paris-Saclay, ONERA, CNRS, Laboratoire d'étude des microstructures (LEM) (France), 2. Laboratoire Photonique Numérique et Nanosciences, CNRS-Institut d'Optique - Université de Bordeaux (France)

15:00–15:20 (*Invited*)
Creation and Control of Quantum Light Emitters in 2D Flatland
*Han Htoon[1]
1. Los Alamos National Laboratory (United States of America)

~Coffee Break~

16:00–16:20 (*Invited*)
Anharmonicity and confinement effects in Carbyne-like Materials
*Sebastian Heeg[1]
1. Humboldt-Universität zu Berlin (Germany)

16:20–16:40
Unraveling the Origin of B-Type Photoluminescence Blinking at 2D/3D Heterojunction Interface
*Tao Zhou[1], Dongyang Wan[1], Junpeng lu[1], Zhenhua Ni[1]
1. Southeast University (China)

16:40–17:00 (*Invited*)
Strain and defects engineering in transition metal dichalcogenide nanostructures
*Yasumitsu Miyata[1]
1. Tokyo Metropolitan University (Japan)

17:00–17:20
Moiré Superlattice in Twisted Transition Metal Dichalcogenide Trilayers
*Hao Ou[1], Kota Tanaka[2], Koshi Oi[2], Jiang Pu[1], Taishi Takenobu[2]
1. Institute of Science Tokyo (Japan), 2. Nagoya Univ. (Japan)

19th June (Thu.)

14:00–14:20 (*Invited*)

Optical Absorption in Layered Semiconductor to Semimetal Platinum Diselenide

*Marin Tharrault[1], Sabrine Ayari[1,2], Mehdi Arfaoui[3], Eva Desgué[4], Romaric Le Goff[1], Sihem Jaziri[3,5], Bernard Plaçais[1], Pierre Legagneux[4], Francesca Carosella[1], Christophe Voisin[1], Robson Ferreira[1], Emmanuel Baudin[1]
1. Laboratoire de Physique de l'Ecole normale supérieure, ENS, Université PSL, CNRS, Sorbonne Université, Université Paris Cité (France), 2. De Vinci Higher Education, Research Center (France), 3. Laboratoire de Physique de la Matière Condensée, Faculté des Sciences de Tunis, Université Tunis El Manar (Tunisia), 4. Thales Research & Technology (France), 5. Laboratoire de Physique des Matériaux : Structure et Propriétés, Faculté des Sciences de Bizerte, Université de Carthage (Tunisia)

14:20–14:40

THERMAL TRANSPORT ACROSS TWISTED BI-LAYERS OF 2D TRANSITION METAL DICHALCOGENIDES

*Marianna Sledzinska[1], Jiaqi Yang[1,2], Daniel Capolat Palomar[1], Onurcan Kaya[1], Aron W Cummings[1], Aitor Lopeandia[1,2], Javier Rodríguez Viejo[1,2], Stephan Roche[1,3]
1. Catalan Institute of Nanoscience and Nanotechnology (ICN2) (Spain), 2. UAB (Spain), 3. ICREA (Spain)

14:40–15:00

Chiral Stacking Identification of Two-Dimensional Triclinic Crystals Enabled by Machine Learning

*He Hao[1], Kangshu Li[1], Xujing Ji[1], Xiaoxu Zhao[1], Lianming Tong[1], Jin Zhang[1]
1. Peking University (China)

15:00–15:20 (*Invited*)

Probing strong electron-phonon coupling in graphene by resonance Raman spectroscopy with infrared excitation energy

*Simone Sotgiu[1,2], Tommaso Venanzi[2], Lorenzo Graziotto[2], Francesco Macheda[3], Taoufiq Ouaj[1], Elena Stellino[2], Guglielmo Marchese[2], Claudia Fasolato[4], Paolo Postorino[2], Vaidotas Mišeikis[3], Marvin Metzelaars[1], Paul Kögerler[1], Bernd Beschoten[1], Camilla Coletti[3], Stefano Roddaro[5], Matteo Calandra[6], Michele Ortolani[2], Christoph Stampfer[1], Francesco Mauri[2], Leonetta Baldassarre[2]
1. RWTH Aachen Univ. (Germany), 2. Sapienza Univ. (Italy), 3. IIT (Italy), 4. CNR (Italy), 5. Pisa Univ. (Italy), 6. Trento Univ. (Italy)

~Coffee Break~

16:00–16:20 (*Invited*)

Intrinsic process for upconversion photoluminescence via K-momentum phonon coupling in carbon nanotubes

*Daichi Kozawa[1,2], Shun Fujii[1,3], Yuichiro K. Kato[1]
1. RIKEN (Japan), 2. NIMS (Japan), 3. Keio University (Japan)

16:20–16:40

EXPERIMENTAL DETERMINATION OF PHASE TRANSITIONS OF WATER MOLECULES ENCAPSULATED INSIDE THIN SWCNTs

*Aina Fitó-Parera[1], Miles Martinati[1,2], Wim Wenseleers[2], Sofie Cambré[1]
1. TSM2, University of Antwerp (Belgium), 2. NANOrOPT, University of Antwerp (Belgium)

16:40–17:00

Multi-modal carbon nanotube characterization for nano-confined thermodynamics

*Matthias Kuehne[1]

1. Brown University (United States of America)