工学系WINGS産学協創教育推進基金

第424回GMSI公開セミナー／第169回WINGSセミナー

Probing novel physical properties in graphitic nanocarbons

Professor Sihan Zhao

School of Physics, Zhejiang Province Key Laboratory of Quantum Technology and Device, State Key Laboratory of Silicon and Advanced Semiconductor Materials, Zhejiang University

Date: Wednesday, April 24, 2024 14:00-15:30

Venue: Faculty of Engineering Bldg. 2, Room 31A

Abstract:

I will be presenting our work on probing and understanding new physical phenomena in low-dimensional graphitic nanocarbons such as carbon nanotubes and graphene. Our samples are ultraclean either prepared by a direct growth on substrates or encapsulated within hexagonal boron nitride. Our probing technique combines far-field spectroscopy, near-field optical nanoscopy together with the low-temperature electrical transport. I will focus on Plasmonic Doppler effect in monolayer graphene [1] and significant interlayer interactions in van der Waals-coupled one-dimensional (1D) moiré superlattivel ces [2,3]. I will also share with you our lab construction and our recent progress in studying optical properties of carbon nanotubes as well as on-demand fabrications of novel mixed-dimensional heterostructures.

Dr. Sihan Zhao
Tenure-track Research Professor
School of Physics,
Zhejiang University,
Hangzhou, China.

References

[1] Zhao, W.; Zhao, S.; Li, H.; Wang, S.; Wang, S.; Utama, M. I. B.; Kahn, S.; Jiang, Y.; Xiao, X.; Yoo, S.; Watanabe, K.; Taniguchi, T.; Zettl, A.; Wang, F. **(2021):** Efficient Fizeau Drag from Dirac electrons in monolayer graphene. *Nature* 594, 517-521

[2] Zhao, S., Moon, P.; Miyauchi, Y.; Nishihara, T.; Matsuda, K.; Koshino, M.; Kitaura, R. **(2020):** Observation of Drastic Electronic-Structure Change in a One-Dimensional Moiré Superlattice. *Physical Review Letters* 124, 106101

[3] Zhao, S., Kitaura, R.; Moon, P.; Koshino, M., and Wang, F. **(2022):** Interlayer Interactions in 1D Van der Waals Moiré Superlattices. *Advanced Science* 2103460

Bio of the speaker:

2006.09 - 2010.07 Jilin University, China（BS）
2011.04 - 2015.12 Nagoya University, Japan（DSc）
2016.03 - 2020.08 University of California, Berkeley（Postdoc）
2021 - now Zhejiang University (Tenure-track Research Professor)

Dr. Sihan Zhao became a faculty member from Jan. 2021 in School of Physics, Zhejiang University (ZJU). He was recruited as a ZJU 100 Young Research Professor. He previously was a postdoctoral employee (2016-2020) working with Prof. Feng Wang in the Department of Physics, University of California at Berkeley. He received his Ph.D. from Nagoya University, Japan (Dec. 2015) under the supervision of Prof. Hisanori Shinohara & Prof. Ryo Kitaura. He received his Bachelor's Degree from Jilin University, China (July 2010).

主催：
東京大学大学院工学系研究科専攻間横断型教育プログラム 機械システム・イノベーション（GMSI）
未来社会協創国際卓越大学院（WINGS CFS）
量子科学技術国際卓越大学院（WINGS-QSTEP）
統合物質・科学国際卓越大学院（MERIT-WINGS）
高齢社会総合研究国際卓越大学院（WINGS-GLAFS）
工学系WINGS産学協創教育推進基金

本件連絡先：
東京大学大学院工学系研究科機械工学専攻　教授　丸山　茂夫
GMSI事務局　E-mail: office@gmsi.t.u-tokyo.ac.jp　Phone: 03-5841-0696