

Curriculum Vitae

Personal Information

Name: Qiankun Wang

Gender: Male

Birth: 1 November, 1990, Jiangsu, China

Nationality: Chinese

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Summary

- Scientific researcher with over 5 years of successful experience in surface physics and data analysis & modeling
- Rich experience in UHV systems and surface characterization techniques (ARPES, XPS, STM, AFM) and thin film fabrications (PVD, CVD)
- Good English speaking, writing and presentation skills with more than 20 peer-reviewed publications

Work History

University of Groningen – Postdoc Researcher

09/2019 – Current

- NWO project: tuning the electronic properties of graphene-based 2D materials
- CVD graphene fabrication and characterization (ARPES, XPS, LEED, AFM, STM)
- Data analysis, modelling and visualization
- Mentor PhD and master students
- Publish research results in peer-reviewed journals and present data at seminars and conferences

A. P. E. Research S. R. L. – Research Intern

05/2018 – 06/2018

- Collaborate with the SPM company to work on the ZnO, ITO semiconductor surface modifications
- Surface measurements with AFM, Raman and Ambient STM

University of Mons – Research Intern

02/2017 – 04/2017

- Collaborate with the theory group to work on the ZnO/organic interfaces and study how the organic film modify ZnO semiconductors

- DFT and TD-DFT theory training: Gaussian, SIESTA
- Get familiar with programming skills: Python, Linux OS
- Prepare and analyze data for publications

SCHOTT Glass - Intern

04/2012 – 08/2012

- Deep understanding of thin glass properties
- Glass hardening, tests and warp measurements

Education

Humboldt University of Berlin, Germany

09/2015 - 05/2019 PhD in Physics (Marie Curie researcher)

- Research: inorganic and organic semiconductor surfaces and interfaces, physisorption, chemisorption, energy level alignment (UPS, XPS, NEXAFS, AFM, PVD)

Soochow University, China

09/2012 - 06/2015 M. S. in Physics

- Research: inorganic and organic semiconductor surface and interface electronic properties and their applications in OPVs and OLEDs

Soochow University, China

09/2008 - 06/2012 B. S. in Physics

Personal Skills

Job-related skills

- Rich knowledge in UHV, ARUPS, XPS, NEXAFS, STM, AFM, LEED, UV-Vis/IR, Raman, contact angle
- Data analysis, processing, modeling and visualization
- DFT simulations, Gaussian, SIESTA packages
- Surface science, doping, surface modification, ion sputtering
- Thin film fabrication (thermal evaporation, PVD, self-assembly, spin-coating), CVD graphene growth, metal E-beam evaporation
- Experienced in metal crystals, ZnO, GaN, ITO semiconductors, organic molecules, polymers
- Mathematica, Python, Linux, Microsoft Office writing and presentation

Languages

- Chinese: Mother tongue
- English: Proficient user

Sporting skills

- Basketball, Table Tennis, Badminton, Cycling

Awards

- 2018 Chinese Government Award for Outstanding Self-financed Students Abroad
(6000 Euro): 2018 年国家优秀留学生自费奖学金

Publication List

- Wang, Y.; Liu, X.; **Wang, Q.**; Quick, M.; Kovalenko, S.; Chen, Q.; Koch, N.; Pinna, N. Insights into Charge Transfer at an Atomically Precise Nanocluster/ Semiconductor Interface. *Angew. Chem.* **2020**, *132*, 7822–7828.
- Ligorio, G.; Cotella, G.; Bonasera, A.; Morales, N.; Carnicella, G.; Kobin, B.; **Wang, Q.**; Koch, N.; Hecht, S.; List-Kratochvil, E. J. W. and Cacialli, F. Modulating the Luminance of Organic Light-Emitting Diodes via Optical Stimulation of a Photochromic Molecular Monolayer at Transparent Oxide Electrode. *Nanoscale* **2020**, *12*, 5444.
- **Wang, Q.**; Ligorio, G.; Diez-Cabanes, V.; Cornil, D.; Kobin, B.; Hildebrandt, J.; Nardi, M. V.; Timpel, M.; Hecht, S.; Cornil, J.; et al. Dynamic Photoswitching of Electron Energy Levels at Hybrid ZnO/Organic Photochromic Molecule Junctions. *Adv. Funct. Mater.* **2018**, *28*, 1800716.
- **Wang, Q.**; Ligorio, G.; Schlesinger, R.; Diez-Cabanes, V.; Cornil, D.; Garmshausen, Y.; Hecht, S.; Cornil, J.; List-Kratochvil, E. J. W.; Koch, N. Switching the Electronic Properties of ZnO Surfaces with Negative T-Type Photochromic Pyridyl-dihydropyrene Layers and Impact of Fermi Level Pinning. *Adv. Mater. Interfaces* **2019**, *6*, 1900211.
- **Wang, Q.**; Diez-Cabanes, V.; Dell’Elce, S.; Liscio, A.; Kobin, B.; Li, H.; Brédas, J.-L.; Hecht, S.; Palermo, V.; List-Kratochvil, E. J. W.; et al. Dynamically Switching the Electronic and Electrostatic Properties of Indium–Tin Oxide Electrodes with Photochromic Monolayers: Toward Photoswitchable Optoelectronic Devices. *ACS Appl. Nano Mater.* **2019**, *2*, 1102–1110.
- **Wang, Q.**; Frisch, J.; Herder, M.; Hecht, S.; Koch, N. Electronic Properties of Optically Switchable Photochromic Diarylethene Molecules at the Interface with Organic Semiconductors. *ChemPhysChem* **2017**, *18*, 722–727. **(selected as Very Important Paper, Front Cover)**
- **Wang, Q.**; Wang, R.; Shen, P.; Li, C.; Li, Y.; Liu, L. jia; Duhm, S.; Tang, J. Energy Level Offsets at Lead Halide Perovskite/Organic Hybrid Interfaces and Their Impacts on Charge Separation. *Adv. Mater. Interfaces* **2015**, *2*, 1400528.
- Zhou, L.; Xiang, H.; Zhu, Y.; Ou, Q.; **Wang, Q.**; Du, J.; Hu, R.; Huang, X.; Tang, J. Multifunctional Silver Nanoparticle Interlayer-Modified ZnO as the Electron-Injection Layer for Efficient Inverted Organic Light-Emitting Diodes. *ACS Appl. Mater. Interfaces* **2019**, *11*, 9251–9258.

- Wang, R.; Katase, T.; Fu, K.; Zhai, T.; Yang, J.; **Wang, Q.**; Ohta, H.; Koch, N.; Duhm, S. Oxygen Vacancies Allow Tuning the Work Function of Vanadium Dioxide. *Adv. Mater. Interfaces* **2018**, *5*(22), 1801033.
- Ou, Q.; Li, C.; **Wang, Q.**; Li, Y.; Tang, J. Recent Advances in Energetics of Metal Halide Perovskite Interfaces. *Adv. Mater. Interfaces* **2017**, *4*, 1600694.
- Zhou, L.; **Wang, Q.**; Ou, Q.; Zhu, Y.; Lin, Y.; Fan, Y.; Wei, H. Speckle Image Holography Modulated Full-Color Organic Light-Emitting Diodes with High Efficiency and Engineered Emission Profile. *Org. Electron.* **2017**, *42*, 13–20.
- Li, Y.; **Wang, Q.**; Ou, Q.; Tang, J. Interface Energetics and Engineering of Organic Heterostructures in Organic Photovoltaic Cells. *Sci. China Chem.* **2016**, *59*, 422–435.
- Wang, Y.; Luo, Q.; Wu, N.; **Wang, Q.**; Zhu, H.; Chen, L.; Li, Y.-Q.; Luo, L.; Ma, C.-Q. Solution-Processed MoO₃:PEDOT:PSS Hybrid Hole Transporting Layer for Inverted Polymer Solar Cells. *ACS Appl. Mater. Interfaces* **2015**, *7*, 7170–7179.
- Guo, X.; Xie, H.; Zheng, J.; Xu, H.; **Wang, Q.**; Li, Y.; Lee, S.; Tang, J. The Synthesis of Multi-Structured SnS Nanocrystals toward Enhanced Performance for Photovoltaic Devices. *Nanoscale* **2015**, *7*, 867–871.
- Ma, Z.; **Wang, Q.**; Li, C.; Li, Y.; Zhang, D.; Liu, W.; Wang, P.; Tang, J. Efficient Inverted Polymer Solar Cells Integrated with a Compound Electron Extraction Layer. *Opt. Commun.* **2015**, *356*, 541–545.
- Xie, H.; Li, Y.; Ma, G.; **Wang, Q.**; Zhang, D.; Tang, J. Enhanced Performance of Inverted Organic Solar Cells by Introducing a Phosphorescence-Doped Electron Extraction Layer. *IEEE J. Photovoltaics* **2015**, *5*, 885–888.
- Ou, Q.; Zhou, L.; Li, Q.; Shen, S.; Chen, J.; Li, C.; **Wang, Q.**; Lee, S.; Tang, J. Extremely Efficient White Organic Light. *Adv. Funct. Mater.* **2014**, *24*, 7249.

More publications are listed at google scholar:

https://scholar.google.com/citations?hl=en&user=_xU8v2MAAAAJ