Curriculum Vitae

Lei Wang

Research Fellow, FIN: G3280651T
Department of Electrical & Computer Engineering
National University of Singapore
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Date & Place of Birth: 1986, Hunan Province, China
Current Address: *E4-07-04, 10 Kent Ridge Crescent, 119260, Singapore*
Supervisor: Cheng-Wei Qiu, PhD, Assistant Professor, Department of Electrical & Computer Engineering, National University of Singapore

Education

- 2010–2014: PhD, Physical Electronics, State Key Laboratory on Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, Changchun, China.

  Supervisor: Prof. Hong-Bo Sun and Prof. Hai-Yu Wang

  http://www.lasun-jlu.cn/index.php
- 2008–2010: a part of PhD program, for the first two years, being a Master student in Condensed Matter Physics, College of Physics, Jilin University, Changchun, China.
- 2004–2008: Bachelor of Science, Condensed Matter Physics, College of Physics, Jilin University, Changchun, China.

Research Interests

- Fundamental optical-electronic conversion mechanism of organic molecules, polymers, semiconductor nanocrystals and carbon nanomaterials.
- Charge transfer and energy transfer.

Professional Skill

- Ultrafast spectroscopy

  Possessing rich experiences on building and manipulating the in-built ultrafast spectroscopic systems, including the femtosecond time-resolved transient absorption setup, the femtosecond time-resolved photoluminescence dynamics based on the up-conversion technique and the time-correlated single-photon counting system.

  Specially familiar with the excited-state studies in semiconductor nanocrystals, carbon nanomaterials and two-dimensional transition metal dichalcogenides.

Professional Service

- Referee: IEEE Journal of Selected Topics in Quantum Electronics, Optics Letters.

Honors and Awards

- 2013: National Scholarship for outstanding PhD students
  Graduate student fundamental Scholarship for academic year 2012-2013
- 2012: Second-class graduate student Scholarship, "Outstanding student in Jilin University" for academic year 2011-2012
  Graduate student fundamental Scholarship for academic year 2011-2012
- 2011: Best Poster Award 1st (18th National Semiconductor Physics Conference, China, 2011)
  Second-class graduate student Scholarship, "Outstanding student in Jilin University" for academic year 2010-2011

Publications (Peer-reviewed Journal Publication)

1. **L. Wang**, Q. Li, H. Y. Wang, R. Zhang, Q. D. Chen, H. L. Xu, W. Han, Z. Z. Shao, H. and B. Sun, *Ultrafast optical spectroscopy of surface-modified silicon quantum dots: unraveling the underlying mechanism of the ultrabright and color-tunable photoluminescence*, **Light: Science & Applications**, 4, e245 (2015).
2. **L. Wang**, S. J. Zhu, H. Y. Wang, S. N. Qu, Y. L. Zhang, J. H. Zhang, Q. D. Chen, H. L. Xu, W. Han, and B. Yang, H. B. Sun, *Common origin of green luminescence in carbon nanodots and graphene quantum dots*, **ACS Nano**, 8, 2541, (2014).
3. **L. Wang**, H. Y. Wang, H. T. Wei, H. Zhang, Q. D. Chen, H. L. Xu, W. Han, B. Yang, and H. B. Sun, *Unraveling charge separation and transport mechanism in aqueous-processed polymer/CdTe nanocrystal hybrid solar cells*, **Adv. Energy Mater.**, 4, 1301882, (2014).
4. **L. Wang**, H. Y. Wang, Y. Wang, S. J. Zhu, Y. L. Zhang, J. H. Zhang, Q. D. Chen, W. Han, H. L. Xu, B. Yang, and H. B. Sun, *Direct observation of quantum confined graphene-like states and novel hybrid states in graphene oxide by transient spectroscopy*. **Adv. Mater.**, 25, 6539, (2013).
5. **L. Wang**, H. Y. Wang, H. H. Fang, H. Wang, Z. Y. Yang, B. R. Gao, Q. D. Chen, W. Han, and H. B. Sun, *Universal electron injection dynamics at nano interfaces in dye-sensitized solar cells*, **Adv. Funct. Mater.**, 22, 2783 (2012).
6. **L. Wang**, S. J. Zhu, H. Y. Wang, Y. F. Wang, Y. W. Hao, J. H. Zhang, Q. D. Chen, Y. L. Zhang, W. Han, B. Yang, and H. B. Sun, *Unraveling bright molecule-like state and dark intrinsic state in green-fluorescence graphene quantum dots via ultrafast spectroscopy*, **Adv. Optical Mater.,** 1, 264 (2013).
7. **L. Wang**, C. F. Wu, H. Y. Wang, Y. F. Wang, Q. D. Chen, W. Han, W. P. Qin, J. McNeillc, and H. B. Sun, *Internal structure-mediated ultrafast energy transfer in self-assembled polymer-blend dots*, **Nanoscale**, 5, 7265 (2013).
8. S. J. Zhu*, **L. Wang*(**These authors contributed equally to this paper**)**, B. Li, Y. B. Song, X. H. Zhao, G. Y. Zhang, S. T. Zhang, S. Y. Lu, J. H. Zhang, H. Y. Wang, H. B. Sun, and B. Yang, *Investigation of photoluminescence mechanism of graphene quantum dots and evaluation of their assembly into polymer dots*, **Carbon**, 77, 462, (2014).
9. S. J. Zhu*, **L. Wang*(**These authors contributed equally to this paper**)**, N. Zhou, X. H. Zhao, Y. B. Song, S. Maharjan, J. H. Zhang, L. J. Lu, H. Y. Wang, and B. Yang, *The crosslink enhanced emission (CEE) in non-conjugated polymer dots:*

from photoluminescence mechanism to cellular uptake mechanism and internalization, **Chem. Commun.**, 50, 13845 (2014).

10. **L. Wang**, H. Y. Wang, B. R. Gao, L. Y. Pan, Y. Jiang, Q. D. Chen, and H. B. Sun, *Transient absorption spectroscopic study on band-structure-type change in CdTe/CdS core-shell quantum dots*, **IEEE J. Quantum Electron.**, 47, 1177 (2011).
11. H. Wang, H. Y. Wang, A. Bozzola, A. Toma, S. Panaro, W. Raja, A. Alabastri, **L. Wang**, Q. D. Chen, H. L. Xu, F. De Angelis, H. B. Sun and R. P. Zaccaria, *Dynamics of Strong Coupling between J-Aggregates and Surface Plasmon Polaritons in Subwavelength Hole Arrays*, **Adv. Funct. Mater.**, 26, 6198 (2016).
12. H. T. Wei, G. Jin, **L. Wang**, L. Hao, T. Y. Na, Y. Wang, W. J. Tian, H. Z. Sun, H. X. Zhang, H. Y. Wang, H. Zhang, and B. Yang, *Synthesis of a water-soluble conjugated polymer based on thiophene for an aqueous-processed hybrid photovoltaic and photodetector device*. **Adv. Mater.**, 26, 3655 (2014).
13. Z. L. Chen, H. Zhang, Q. S. Zeng, Y. Wang, D. D. Xu, **L. Wang**, H. Y. Wang, and B. Yang, *In situ construction of nanoscale CdTe-CdS bulk heterojunctions for inorganic nanocrystal solar cells*, **Adv. Energy Mater.**, 4, 1400235 (2014).
14. Q. Li, Y. He, J. Chang, **L. Wang**, H. Z. Chen, Y. W. Tan, H. Y. Wang, and Z. Z. Shao, *Surface-modified silicon nanoparticles with ultrabright photoluminescence and single-exponential decay for nanoscale fluorescence lifetime imaging of temperature*, **J. Am. Chem. Soc.**, 135, 14924 (2013).
15. S. J. Zhu, Q. N. Meng, **L. Wang**, J. H. Zhang, Y. B. Song, H. Jin, K. Zhang, H. C. Sun, H. Y. Wang, and B. Yang, *Highly photoluminescent carbon dots for multicolor patterning, sensors, and bioimaging*, **Angew. Chem. In. Ed.**, 52, 3953 (2013).
16. S. J. Zhu, J. H. Zhang, S. J. Tang, C. Y. Qiao, **L. Wang**, H. Y. Wang, X. Liu, B. Li, Y. F. Li, W. L. Yu, X. F. Wang, H. C. Sun, and B. Yang, *Surface chemistry routes to modulate the photoluminescence of graphene quantum dots: from fluorescence mechanism to up-conversion bioimaging applications*, **Adv. Funct. Mater.**, 22, 4732 (2012).

Conference Presentations

1. **L. Wang**, H. Y. Wang, B. R. Gao, Q. D. Chen, W. Han, and H. B. Sun, *A comparative study on electron injection dynamics between butylamine-capped CdSe quantum dot-sensitized nanocrystalline TiO_2 films and metal-free organic dye-sensitized solar cells*, 2012 MRS Fall Meeting & Exhibit, Boston, USA, November 25–30, 2012. (Poster)
2. **L. Wang**, H. Wang, Z. Y. Yang, B. R. Gao, and H. Y. Wang, *Electron injection dynamics in dye-sensitized solar cells*, International Conference on Micro/Nano Optical Engineering (ICOME-2011), Changchun, China, June 12–16, 2011. (Poster)
3. **L. Wang**, *Exploration of the relationship between emission states and electronic states in carbon nanomaterials by ultrafast spectroscopy*, 6th National Youth's Academic Forum for Optics, China, Xi'an, China, July 31–August 3, 2014. (Invited talk)

4. **L. Wang**, *Internal structure-mediated ultrafast energy transfer in polymer -blend dots*, 19th National Semiconductor Physics Conference, China, Weihai, China, July 14–18, 2013. (Oral)
5. **L. Wang**, *Transient absorption spectroscopic study on band-structure-type change in CdTe/CdS core-shell quantum dots*, 18th National Semiconductor Physics Conference, Hohhot, China, August 20–26, 2011. (Poster)

References

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