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Photon detection at subwavelength scales

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List of publications

- Scientific Articles
  - **Q. Wang**, and M. J. A. de Dood, *An absorption-based superconducting nano-detector as a near-field optical probe*, Opt. Express **21**, 3682, (2013). (Chapter 5 of this thesis).
  - J. J. Renema, R. Gaudio, **Q. Wang**, Z. Zhou, A. Gaggero, F. Mattioli, R. Leoni, D. Sahin, M. J. A. de Dood, A. Fiore, and M. P. van Exter, *Experimental test of theories of the detection mechanism in a nanowire superconducting single photon detector*, Phys. Rev. Lett. **112**, 117604, (2014).
  - J. J. Renema, R. J. Rengelink, I. Komen, **Q. Wang**, R. Gaudio, K. P. M. op 't Hoog, Z. Zhou, D. Sahin, A. Fiore, P. Kes J. Aarts, M. P. van Exter, M. J. A. de Dood, E. F. C. Driessen, *The effect of magnetic field on the intrinsic detection efficiency of superconducting single-photon detectors*, Appl. Phys. Lett. **106**, 092602, (2015).
  - J. J. Renema, **Q. Wang**, R. Gaudio, I. Komen, K. op't Hoog, D. Sahin, A. Schilling, M. P. van Exter, A. Fiore, A. Engel, and M. J. A. de Dood, *Position-dependent local detection efficiency in a nanowire superconducting single-photon detector*, Nano Lett. **15**, 4541, (2015). (Chapter 3 of this thesis).
  - **Q. Wang**, J. J. Renema, A. Engel, M. P. van Exter, and M. J. A. de Dood, *Local detection efficiency of a NbN superconducting single photon detector explored by a scattering scanning near-field optical microscope*, Opt. Express **23**, 24873, (2015). (Chapter 7 of this thesis).
  - **Q. Wang**, J. J. Renema, A. Gaggero, F. Mattioli, R. Leoni, M. P. van Exter, and M. J. A. de Dood, *How noise affects quantum*

detector tomography, accepted for publication by J. Appl. Phys. (Chapter 2 of this thesis).

- **Q. Wang**, et al., *Optimal design of NbN superconducting single photon detectors*, (in preparation for publication, Chapter 4 of this thesis).

- Conference proceedings

  - **Q. Wang**, S. Qu, S. Li, C. Wang, and X. Xu, *Improvement of internal efficiency of InGaN QWs with asymmetrical quantum barriers*, The 7th International Forum on Solid State Lighting, Shenzhen, China (2010).
  - **Q. Wang**, J. J. Renema, G. Frucci, Z. Zhou, A. Gaggero, F. Mattioli, R. Leoni, A. Fiore, M. P. van Exter, and M. J. A. de Dood, *Accurate characterization of a superconducting nanowire single photon detector*, QOT_OR_006, NEW-RAD 2014, Helsinki, Finland, (2014).
  - **Q. Wang**, and M. J. A. de Dood, *Near-field single-photon detection in a scattering SNOM*, proceeding 9504-2, SPIE Optics + Optoelectronics, Prague, Czech Republic, (2015). (Chapter 6 of this thesis).

- Patents:

  - *A LED with an electron-blocking layer including gradual Al component*, Publication No.: CN102820394A, (2012).
  - *A method of fabricating high quantum efficient GaN LEDs with AlInN quantum barrier*, Publication No.: CN102738340A, (2012).

Curriculum vitae

Qiang Wang was born on the 15th of October 1985 in Dezhou, China. He graduated from Yucheng No.1 Middle School in 2004 and went on to study physics at the School of Physics of Shandong University. In July 2008, he obtained his BSc diploma after submission of a bachelor thesis "*Study of SiO_2 thin film deposited by PECVD*". He then joined the research group of Prof. Xiaobo Hu for a master program at the Institute of Crystal Materials of Shandong University. In July 2011, he obtained his MSc degree with the thesis titled "*Study of the polarization effect in GaN LEDs*". In August 2011, he started his PhD research at the Leiden Institute of Physics, Leiden University in the Netherlands on near-field optics with superconducting single-photon detectors supervised by Prof. Eric Eliel and Dr. Michiel de Dood. As of November 1 he will work as a postdoctoral researcher in the group of Prof. Andreas Schilling at the University of Zürich.

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