Low-dimensional solution-processable electronics

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Curriculum Vitae

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5 May 1990	Born in Groningen, The Netherlands

Education

03/2016 - 10/2019	University of Groningen, The Netherlands Zernike Institute for Advanced Materials Ph.D. research in the Photophysics and OptoElectronics group under the supervision of Prof. M. A. Loi. Part of CogniGron
09/2013 - 07/2015	University of Groningen, The Netherlands Top Master programme in Nanoscience Research project: *"Electric Transport in Magnetic Ionic Liquid Gated Materials"*
09/2009 - 07/2013	University of Groningen, The Netherlands Bachelor Applied Physics Research project: *"Using metal enhanced fluorescence for improving the detection of organic molecules"*

Conference contributions

1. ”Exploiting hysteresis effects in polymer wrapped single-walled carbon nanotubes for neuromorphic applications”, The Zernike Institute Vlieland Conference. *May 19-21, 2019, Vlieland, The Netherlands.*

2. ”High quality s-SWCNT inks for highly reproducible field-effect transistors”, Physics@Veldhoven NWO Conference. *January 25-26, 2019, Veldhoven, The Netherlands.*

3. ”High quality s-SWCNT inks for highly reproducible field-effect transistors”, NT18 International Nanotube conference. *July 15-20, 2018, Beijing, China.*

4. ”Controlling the Polarity of Network s-SWCNT Field Effect Transistors”, Physics@Veldhoven NWO Conference. *January 23-24, 2018, Veldhoven, The Netherlands.*

5. ”On-Chip Chemical Self-Assembly of Semiconducting Single-Walled Carbon Nanotubes (SWNTs): Toward Robust and Scale Invariant SWNTs Transistors”, The Zernike Institute Vlieland Conference. *May 7-9, 2017, Vlieland, The Netherlands.*

6. ”Highly stable s-SWCNT field effect transistors top-gated with high-k dielectric”, Physics@Veldhoven NWO Conference. *January 17-18, 2017, Veldhoven, The Netherlands.*

List of publications

1. **Polar Side Chains Enhanced Selection of Semiconducting Single-Walled Carbon Nanotubes by Polymer Wrapping**
   G. Ye, **W. Talsma**, K. Tran, Y. Liu, S. Dijkstra, J. Cao, J. Chen, J. Qu, M. A. Loi, R. C. Chiechi
   submitted

2. **Efficient Selective Sorting of Semiconducting Carbon Nanotubes Using Ultranarrow Bandgap Polymers** [Chapter 3]
   W. Talsma, G. Ye, Y. Liu, H. Duim, S. Dijkstra, K. Tran, J. Qu, J. Song, R. C. Chiechi, M. A. Loi
   submitted

3. **Heterostructure of PbS Quantum Dots and Carbon Nanotubes for High Efficiency NIR Light-Emitting Field-Effect Transistors**
   D. Bederak, A. G. Shulga, S. Kahmann, **W. Talsma**, J. Pelanskis, D. N. Dirin, M. V. Kovalenko, M. A. Loi
   submitted

4. **Field effect transistors based on formamidinium tin triiodide perovskite** [Chapter 4]
   S. Shao, **W. Talsma**, M. Pitaro, J. Dong, S. Kahmann, A. J. Rommens, G. Portale, M. A. Loi
   Adv. Funct. Mater., 2008478 (2021) [doi: 10.1002/adfm.202008478]

5. **Synaptic plasticity in semiconducting single-walled carbon nanotubes transistors** [Chapter 5]
   W. Talsma, H. van Loo, S. Shao, S. Jung, S. Allard, U. Scherf, M. A. Loi
   Adv. Intell. Syst., 2, 2000154 (2020) [doi: 10.1002/aisy.202000154]

6. **Customizing the Polarity of Single-Walled Carbon-Nanotube Field-Effect Transistors Using Solution-Based Additives**
J. M. Salazar-Rios, A. A. Sengrian, **W. Talsma**, H. Duim, M. Abdu-Aguye, S. Jung, N. Fröhlich, S. Allard, U. Scherf, M. A. Loi
Adv. Electron. Mater., 6, 1900789 (2020) [doi: 10.1002/aelm.201900789]

7. **Real-Time Monitoring of Cellular Cultures with Electrolyte-Gated Carbon Nanotube Transistors**
F. Scuratti, G. E. Bonacchini, C. Bossio, J. M. Salazar-Rios, **W. Talsma**, M. A. Loi, M. R. Antognazza, M. Caironi
ACS Appl. Mater. Interfaces, 11 (41), 37966–37972 (2019) [doi: 10.1021/acsami.9b11383]

8. **Remarkably Stable, High-Quality Semiconducting Single-Walled Carbon Nanotube Inks for Highly Reproducible Field-Effect Transistors** [Chapter 2]
W. Talsma, A. A. Sengrian, J. M. Salazar-Rios, H. Duim, M. Abdu-Aguye, S. Jung, S. Allard, U. Scherf, M. A. Loi
Adv. Electron. Mater. **5**(8), 1900288 (2019) [doi: 10.1002/aelm.201900288]

9. **Enhancing Molecular n-Type Doping of Donor-Acceptor Copolymers by Tailoring Side Chains**
J. Liu, L. Qiu, R. Alessandri, X. Qiu, G. Portale J. Dong, **W. Talsma**, G. Ye, A. A. Sengrian, P. C. T. Souza, M. A. Loi, R. C. Chiechi, S. J. Marrink, J. C. Hummelen, L. J. A. Koster
Adv. Mater. **30**, 1704630 (2018) [doi: 10.1002/adma.201704630]

10. **Understanding the Selection Mechanism of the Polymer Wrapping Technique toward Semiconducting Carbon Nanotubes**
J. M. Salazar-Rios, **W. Talsma**, V. Derenskyi, W. Gomulya, T. Keller, M. Fritsch, S. Kowalski, E. Preis, M. Wang, S. Allard, G. C. Bazan, U. Scherf, M. C. dos Santos, M. A. Loi
Small Methods **2**, 1700335 (2018) [doi: 10.1002/smtd.201700335]

11. **Inducing ferromagnetism and Kondo effect in platinum by paramagnetic ionic gating**
L. Liang, Q. Chen, J. Lu, **W. Talsma**, J. Shan, G. R. Blake, T. T. M. Palstra, J. Ye
Science Advances **4** (4), eaar2030 (2018) [doi: 10.1126/sciadv.aar2030]

12. **On-Chip Chemical Self-Assembly of Semiconducting Single-Walled Carbon Nanotubes (SWNTs): Toward Robust and Scale Invariant SWNTs Transistors**
V. Derenskyi, W. Gomulya, **W. Talsma**, J. M. Salazar-Rios, M. Fritsch, P. Nirmalraj, H. Riel S. Allard, U. Scherf, M. A. Loi
Adv. Mater. **29**, 1606757 (2017) [doi: 10.1002/adma.201606757]