



## Prof. Dr. Jonathan De Roo

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Born:	September 7, 1989	Orcid: 0000-0002-1264-9312
Nationality:	Belgian	ResearcherID: L-3867-2016
Place of Birth:	Eeklo, Belgium	Google scholar: Jonathan De Roo
Civil status:	Married to Maarten Van Winckel	Publons: Jonathan De Roo

### EDUCATION

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10/2012 – 09/2016	Doctor of Science: Chemistry	<b>Ghent University</b> - <i>Summa Cum Laude</i>
	PhD advisors: Prof. Zeger Hens, Prof. Isabel Van Driessche, Prof. José C. Martins Including research visit at <b>ETH Zürich</b> (06-09/2015) with Prof. Maksym Kovalenko PhD defense date: 14/03/2016	
09/2010 – 06/2012	Master of Science in Chemistry	<b>Ghent University</b> - <i>Summa Cum Laude</i>
09/2007 – 06/2010	Bachelor in Chemistry	<b>Ghent University</b> - <i>Summa Cum Laude</i>

### EMPLOYMENT HISTORY

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09/2019 – present	Tenure track assistant professor – University of Basel, Basel, Switzerland
10/2018 – 08/2019	Post-doctoral Research Fellow – Ghent University, Gent, Belgium Junior group leader in the group of Prof. Isabel Van Driessche
10/2016 – 09/2018	Post-doctoral Research Fellow – <b>Columbia University</b> , New York, USA With Prof. Jonathan S. Owen

### SUMMARY OF ACADEMIC ACTIVITY

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- 42 publications in refereed journals: **Nature Materials** (1), J. Am. Chem. Soc. (4), ACS nano (3), Angew. Chem. (1), Chem. Mat. (14), Inorg. Chem. (1), J. Phys. Chem. Lett (1), etc.
- **Total citations: 1500+**, h-index: 21 (source: [google scholar](https://scholar.google.com/citations?user=Jonathan.DeRoo))
- Journal referee for Nano Lett., J. Am. Chem. Soc., Chem. Mater., Inorg. Chem, Langmuir, etc. (record on [publons](https://publons.com))
- 14 talks at conferences and universities
- Funding: **FWO** pre-doctoral fellowship, **Fulbright**, **B.A.E.F**, BOF post-doctoral fellowship, **SNF R'equip**, SNF NCCR member.
- EU experience: participated in three EU projects: EUROTAPES (ID: 280432), COMPASS (ID: 691185) and SYNFONY (ID: 722071).

### INSTITUTIONAL RESPONSIBILITIES

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09/2012 – 06/2016	Member of the Faculty of Sciences <b>Library Commission</b> , Ghent University.
09/2014 – 06/2015	Member of the <b>Diversity Committee</b> of the Faculty of Sciences, Ghent University.
09/2008 – 06/2012	Member of the <b>Education Board</b> of the Chemistry program, Ghent University

## SUPERVISION OF JUNIOR RESEARCHERS (PhD level)

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### Supervision at University of Basel

Rohan Pokratath (est. PhD defence: 09/2023)

Dietger van den Eynden (est. PhD defence: 09/2023)

Mahsa Parvizian (est. PhD defence: 02/2024)

### Co-supervision at Ghent University

Loren Deblock (est. PhD defence: 10/2022)

Evert Dhaene (est. PhD defence: 12/2021)

### Graduated PhD students

Jonas Billet      Synthesis of TiO<sub>2</sub> nanocrystals and application in photocatalysis and batteries.  
PhD defence: 6/09/2019 (Ghent University)

## TEACHING ACTIVITIES

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### University of Basel

*Colloidal nanocrystals; from synthesis to applications* (Course 56650-01) – 3 credit points

Available for: PhD program, Master in Chemistry, Master in Nanosciences

Starts: Spring 2020

### Ghent University

*General Chemistry*, 9 semesters (Teaching Assistant and 2.5 hours of lecturing per semester)

*Superconducting materials*, 3 semesters (2.5 hours of lecturing per semester)

## OUTREACH AND VOLUNTEERING

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11/2019	<b>Swiss Chemistry Olympiad</b> weekend in Basel
11/2018	Science day at Ghent University
04/2018	Science Honors Program for high school students
03/2017	Cornell/Columbia STEM Teachers workshop
03/2017	Workshop on global warming in <b>High School</b> (via OneThroughWorld)
02/2017	Outreach event at the NYC Regional Brain Bee Competition
11/2016	<b>Girls Science day</b> at Columbia University
2013 – 2016	<b>Blogger</b> at Your Formula platform
05/2014	Talk at <b>TEDxGhent</b> 2014

## PRIZES, AWARDS and FELLOWSHIPS

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09/2017	Special Research Fund (BOF) UGent postdoctoral fellowship
10/2017	<b>Umicore</b> Materials Technology <b>Ph.D. Award</b> “ <i>in recognition of original and excellent scientific PhD research in the field of catalysis</i> ”
10/2017	<b>Scientific prize McKinsey &amp; Company</b> “ <i>in recognition of original PhD research with practical implementation or social and economic relevance</i> ”
10/2016	<b>Fulbright</b> scholarship for a research stay in the USA
10/2016	Belgian American Education Foundation fellowship for a research stay in the USA

- 05/2016 **Umicore poster award** *“in recognition of an outstanding poster presentation at EMRS”*
- 05/2016 **E-MRS Young Scientist Award** *“for outstanding performance and promise for future substantial achievement in materials research”.*
- 11/2014 Young Belgium Magnetic Resonance symposium, **best presentation award**
- 05/2014 **E-MRS Young Scientist Award** *“for outstanding performance and promise for future substantial achievement in materials research”.*
- 05/2014 **Reach.Out award** *“to recognize members of the Materials Science community who have designed, organised and implemented a public outreach activity in the EU between the 1st of January 2013 and the 27th of April 2014.”*
- 06/2014 Winner of the TEDxGhent PhD contest
- 09/2012 Research Foundation Flanders (FWO) predoctoral Fellowship
- 06/2012 Dow Chemical Company Award, *“for the **best student** graduating within the program of Master of Chemistry at Ghent University”*
- 06/2012 KVCV Award, *“for the most meritorious student graduating within the program of Master of Chemistry at Ghent University.”*
- 06/2010 Oxford University Press Award, *“for the best student graduating within the program of Bachelor of Chemistry at Ghent University”*

## INVITED TALKS

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- 12/2019 University of Basel, Basel, Switzerland
- 10/2019 ICON symposium, Lecce, Italy
- 04/2019 IST Austria, Vienna, Austria
- 06/2018 University of Basel, Basel, Switzerland
- 03/2018 Lead halide perovskite symposium at ACS New Orleans, USA
- 04/2016 EPFL, Lausanne, Switzerland

## ORGANIZATION OF CONFERENCES

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- 11/2018 Abstract selection for Applied Nanotechnology and Nanoscience International Conference

## SELECTED PUBLICATIONS

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Full up-to-date list on [google scholar](#) and [orcid](#)

Dhaene, E.; Billet, J.; Bennett, E.; Van Driessche, I.; De Roo, J.\*, The Trouble with ODE: Polymerization during Nanocrystal Synthesis. **Nano Letters**. (2019) 19 (10), 7411-7417.

De Keukeleere, K.; Coucke, C.; De Canck, E.; Van Der Voort, P.; Delpech, F.; Coppel, Y.; Hens, Z.; Van Driessche, I.; Owen, J. S.; De Roo, J.\* Stabilization of colloidal Ti, Zr, and Hf oxide nanocrystals by protonated tri-*n*-octylphosphine oxide (TOPO) and its decomposition products. **Chemistry of Materials**. (2017), 29, 10233-10242.  
(times cited: 8)

De Roo, J.; Ibáñez, M.; Geiregat, P.; Nedelcu, G.; Walravens, W.; Maes, J.; Martins, J. C.; Van Driessche, I.; Kovalenko, M.V.\*; Hens, Z.\* *Highly Dynamic Ligand Binding and Light Absorption Coefficient of Cesium Lead Bromide Perovskite Nanocrystals*. **ACS Nano** (2016), 10(2), 2071-2081.  
(times cited: 329)

De Roo, J.\*; Van Driessche, I.; Martins, J. C.; Hens, Z.\* *Colloidal metal oxide nanocrystal catalysis by sustained chemically driven ligand displacement*. **Nature materials** (2016) 15 (5), 517-521.  
(times cited: 41)

De Roo, J.; Van den Broeck, F.; De Keukeleere, K.; Martins, J. C.; Van Driessche, I.; Hens, Z.\* *Unravelling the Surface Chemistry of Metal Oxide Nanocrystals, the Role of Acids and Bases*. **Journal of the American Chemical Society** (2014), 136 (27), 9650-9657.  
(times cited: 59)

## FULL LIST OF A1 PUBLICATIONS (42)

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1. De Roo, J.; Huang, Z.; Schuster, N. J.; Hamachi, L. S.; Congreve, D. N.; Xu, Z.; Xia, P.; Fishman, D. A.; Lian, T.; Owen, J. S.\*; Tang, M. L.\*, Anthracene Diphosphate Ligands for CdSe Quantum Dots; Molecular Design for Efficient Upconversion. **Chemistry of Materials** (2020), 32 (4), 1461-1466.
2. Dhaene, E.; Billet, J.; Bennett, E.; Van Driessche, I.; De Roo, J.\*, The Trouble with ODE: Polymerization during Nanocrystal Synthesis. **Nano Letters**. (2019) 19 (10), 7411-7417.
3. Oliva-Puigdomènech, A.; De Roo, J.; Kuhs, J.; Detavernier, C.; Martins, J. C.; Hens, Z., Ligand Binding to Copper Nanocrystals: Amines and Carboxylic Acids and the Role of Surface Oxides. **Chemistry of Materials** (2019) 31(6), 2058-2067
4. Grigel, V.; Sagar, L. K.; De Nolf, K.; Zhao, Q.; Vantomme, A.; De Roo, J.; Infante, I.; Hens, Z., The Surface Chemistry of Colloidal HgSe Nanocrystals, Towards Stoichiometric Quantum Dots by Design. **Chemistry of Materials** (2018) 30(21), 7637-7647
5. De Roo, J.\*; Zhou, Z.; Wang, J.; Deblock, L.; Crosby, A. J.; Owen, J. S.; Nonnenmann, S. S.\*, Synthesis of Phosphonic Acid Ligands for Nanocrystal Surface Functionalization and Solution Processed Memristors. **Chemistry of Materials** (2018) 30(21), 8034-8039.
6. Singh, S.\*; Tomar, R.; ten Brinck, S.; De Roo, J.; Geiregat, P.; Martins, J. C.; Infante, I.; Hens, Z., Colloidal CdSe Nanoplatelets, a Model for Surface Chemistry/Opto-Electronic Property Relations in Semiconductor Nanocrystals. **Journal of the American Chemical Society** (2018) 140 (41), 13292-13300.
7. Geiregat, P.\*; Maes, J.; Chen, K.; Drijvers, E.; De Roo, J.; Hodgkiss, J. M.; Hens, Z., Bulk-Like Nanocrystals to Probe Intrinsic Optical Gain Characteristics of Inorganic Lead Halide Perovskites. **ACS Nano** (2018) 12 (10), 10178-10188.
8. De Roo, J.\*; Yazdani, N.; Drijvers, E.; Lauria, A.; Maes, J.; Owen, J. S.; Van Driessche, I.; Niederberger, M.; Wood, V.; Martins, J. C.; Infante, I.; Hens, Z., Probing Solvent–Ligand Interactions in Colloidal Nanocrystals by the NMR Line Broadening. **Chemistry of Materials** (2018) 30(15), 5485-5492.

9. Billet, J.; Dujardin, W.; De Keukeleere, K.; De Buysser, K.; De Roo, J.\*; Van Driessche, I.\*, Size Tunable Synthesis and Surface Chemistry of Metastable TiO<sub>2</sub>-Bronze Nanocrystals. **Chemistry of Materials** (2018) 30 (13), 4298-4306.
10. Rijckaert, H.; De Roo, J.; Van Zele, M.; Banerjee, S.; Huhtinen, H.; Paturi, P.; Bennewitz, J.; Billinge, S.; Bäcker, M.; De Buysser, K.; Van Driessche, I.\*, Pair Distribution Function Analysis of ZrO<sub>2</sub> Nanocrystals and Insights in the Formation of ZrO<sub>2</sub>-YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Nanocomposites. **Materials** (2018) 11, 1066.
11. Maes, J.; Balcaen, L.; Drijvers, E.; Zhao, Q.; De Roo, J.; Vantomme, A.; Vanhaecke, F.; Geiregat, P.; Hens, Z.\* Light Absorption Coefficient of CsPbBr<sub>3</sub> Perovskite Nanocrystals. **The Journal of Physical Chemistry Letters** (2018) 3093-3097.
12. Anderson, N. C.; Chen, P. E.; Buckley, A. K.; De Roo, J.; Owen, J. S.\* Stereoelectronic Effects on the Binding of Neutral Lewis Bases to CdSe Nanocrystals. **Journal of the American Chemical Society** (2018) 140, 7199-7205.
13. Wang, J.; Choudhary, S.; De Roo, J.; De Keukeleere, K.; Van Driessche, I.; Crosby, A. J.; Nonnenmann, S. S.\*, How Ligands Affect Resistive Switching in Solution-Processed HfO<sub>2</sub> Nanoparticle Assemblies. **ACS Applied Materials and Interfaces** (2018) 10 (5), 4824-4830.
14. Drijvers, E.; De Roo, J.; Martins, J. C.; Infante, I.; Hens, Z.\*, Ligand Displacement Exposes Binding Site Heterogeneity on CdSe Nanocrystal Surfaces. **Chemistry of Materials**. (2018) 30 (3), 1178-1186
15. De Keukeleere, K.; Coucke, C.; De Canck, E.; Van Der Voort, P.; Delpech, F.; Coppel, Y.; Hens, Z.; Van Driessche, I.; Owen, J. S.; De Roo, J.\* Stabilization of colloidal Ti, Zr, and Hf oxide nanocrystals by protonated tri-n-octylphosphine oxide (TOPO) and its decomposition products. **Chemistry of Materials**. (2017), 29, 10233-10242.
16. Hamachi, L. S.; Jen-La Plante, I.; Coryell, A. C.; De Roo, J., Owen, J. S.\* *Kinetic Control Over CdS Nanocrystal Nucleation Using a Library of Thiocarbonates, Thiocarbamates, and Thioureas*. **Chemistry of Materials**. (2017) 29, 8711-8719.
17. Berestok, T.; Guardia, P.; Blanco, J.; Nafria, R.; Torruella, P.; Lopez-Conesa, L.; Estrade, S.; Ibáñez, M.; De Roo, J.; Luo, Z.; Cadavid, D.; Martins, J. C.; Kovalenko, M. V.; Peiró, F.\*; Cabot, A.\* *Tuning Branching in Ceria Nanocrystals*. **Chemistry of Materials**. (2017) 9, 4418.
18. Rosenboom, J. G.; De Roo, J.; Storti, G.; Morbidelli, M.\* *Diffusion (DOSY) <sup>1</sup>H NMR as an alternative method for molecular weight determination of polyethylene furanoate (PEF) polyesters*. **Macromolecular Chemistry and Physics**. (2017) 218 (1), 1600436
19. Rijckaert, H.; Pollefeyt, G.; Sieger, M.; Hänisch, J.; Bennewitz, J.; De Keukeleere, K.; De Roo, J.; Hühne, R.; Bäcker, M.; Paturi, P.; Huhtinen, H.; Hemgesberg, M.; Van Driessche, I.\* *Optimizing Nanocomposites through Nanocrystal Surface Chemistry: Superconducting YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Thin Films via Low-Fluorine Metal Organic Deposition and Preformed Metal Oxide Nanocrystals*. **Chemistry of Materials** (2017) 29, 6104
20. Rijckaert, H.; De Roo, J.; Roeleveld, K.; Pollefeyt, G.; Bennewitz, J.; Bäcker, M.; Lynen, F.; De Keukeleere, K.; Van Driessche, I.\* *Microwave-assisted YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> precursors: A fast and reliable method towards chemical precursors for superconducting films*. **Journal of the American Ceramic Society**. (2017) 100, 2407.
21. Liu, Y.; Garcia, G.; Ortega, S.; Cadavid, D.; Palacios, P.; Lu, J.; Ibanez, M.; Xi, L.; De Roo, J.; Lopez, A. M.; Marti, S.; Cabezas, I.; Mata, M. d. I.; Luo, Z.; Dun, C.; Dobrozhan, O.; Carroll, D.; Zhang, W.; Martins, J. C.; Kovalenko, M.; Arbiol, J.; Noriega, G.; Song, J.\*; Wahnon Benarroch, P.\*; Cabot, A.\* *Solution-Based Synthesis and Processing of Sn- and Bi-Doped Cu<sub>3</sub>SbSe<sub>4</sub> Nanocrystals, Nanomaterials and Ring-Shaped Thermoelectric Generators*. **Journal of Materials Chemistry A** (2017) 5 (6), 2592-2602
22. Vernieuwe, K.; Cuypers, D.; Kirschhock, C. E. A.; Houthoofd, K.; Vrielinck, H.; Lauwaert, J.; De Roo, J.; Martins, J. C.; Van Driessche, I.; De Buysser, K.\* *Thermal processing of aqueous AZO inks towards functional TCO thin films*. **Journal of Alloys and Compounds** (2017), 690, 360-368.

23. De Roo, J.\*; Baquero, E.; Coppel, J.; De Keukeleere, K.; Van Driessche, I.; Nayral, C.; Hens, Z.; Delpech, F.\* *Insights in the ligand shell, the coordination mode and reactivity of carboxylic acid capped metal oxide nanocrystals*. **Chempluschem** (2016), 81 (11), 1216-1223.  
*Part of Early Career Series.*
24. De Roo, J.\*; Van Driessche, I.; Martins, J. C.; Hens, Z.\* *Colloidal metal oxide nanocrystal catalysis by sustained chemically driven ligand displacement*. **Nature materials** (2016) 15 (5), 517-521.
25. De Roo, J.; Ibáñez, M.; Geiregat, P.; Nedelcu, G.; Walravens, W.; Maes, J.; Martins, J. C.; Van Driessche, I.; Kovalenko, M.V.\*; Hens, Z.\* *Highly Dynamic Ligand Binding and Light Absorption Coefficient of Cesium Lead Bromide Perovskite Nanocrystals*. **ACS Nano** (2016), 10(2), 2071-2081.
26. De Roo, J.\*; De Keukeleere, K.; Hens, Z.; Van Driessche, I.\* *From ligands to binding motifs and beyond; the enhanced versatility of nanocrystal surfaces*. **Dalton Transactions** (2016), 45, 13277-13283
27. Drijvers, E.; De Roo, J.; Geiregat, P.; Fehér, K.; Hens, Z.\*; Aubert, T.\* *Revisited Wurtzite CdSe Synthesis: a Gateway for the Versatile Flash Synthesis of Multi-Shell Quantum Dots and Rods*. **Chemistry of Materials** (2016) 28 (20), 7311-7323.
28. De Roo, J.\*; Coucke, S.; Rijckaert, R.; De Keukeleere, K.; Sinnaeve, D.; Hens, Z.; Martins, J. C.; Van Driessche, I.\* *Amino acid based stabilization of oxide nanocrystals in polar media; from insight in ligand exchange to solution <sup>1</sup>H NMR probing of short-chained adsorbates*. **Langmuir** (2016), 32, 1962-1970.
29. De Keukeleere, K.; Cayado, P.; Meledin, A.; Vallès, F.; De Roo, J.; Rijckaert, H.; Pollefeyt, G.; Bruneel, E.; Palau, A.; Coll, M.; Ricart, S.; Van Tendeloo, G.; Puig, T.; Obradors, X.; Van Driessche, I.\* *Superconducting YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> Nanocomposites Using Preformed ZrO<sub>2</sub> Nanocrystals: Growth Mechanisms and Vortex Pinning Properties*. **Advanced Electronic Materials** (2016), 1600161.
30. Walravens, W., De Roo, J., Drijvers, E., ten Brinck, S., Minuesa, E., Dendooven, J., Detavernier, C., Infante, I., Hens, Z.\* *Chemically Triggered Formation of Epitaxial Quantum Dot Superlattices* **ACS Nano** (2016), 10 (7), 6861-6870
31. Liu, Y.; Cadavid, D.; Ibáñez, M.; De Roo, J.; Ortega, S.; Dobrozhan, O.; Kovalenko, M.; Cabot, A.\* *Colloidal AgSbSe<sub>2</sub> nanocrystals: surface analysis, electronic doping and processing into efficient thermoelectric nanomaterials*. **Journal of Materials Chemistry C** (2016), 4, 4756-4762.
32. Tessier, M.; De Nolf, K.; Dupont, D.; Sinnaeve, D.; De Roo, J.; Hens, Z.\* *Aminophosphines: a Double Role in the Synthesis of Colloidal Indium Phosphide Quantum Dots*. **Journal of the American Chemical Society** (2016), 138 (18), 5923-5929
33. Shavel, A.; Ibáñez, M.; Luo, Z.; De Roo, J.; Carrette, A.; Dimitrievska, M.; Genc, A.; Meyns, M.; Perez-Rodriguez, A.; Kovalenko, M. V., Arbiol, J.; Cabot, A.\* *Scalable heating-up procedure to synthesize monodisperse Cu<sub>2</sub>ZnSnS<sub>4</sub> nanocrystals*. **Chemistry of Materials** (2016) 28 (3), 720-726.
34. De Roo, J.; Justo, Y.; De Keukeleere, K.; Van den Broeck, F.; Martins, J. C.; Van Driessche, I.; Hens, Z.\* *Carboxylic-Acid-Passivated Metal Oxide Nanocrystals: Ligand Exchange Characteristics of a New Binding Motif*. **Angewandte Chemie-International Edition** (2015), 54 (22), 6488-6491.
35. Cayado, P.; De Keukeleere, K.; Garzón, A.; Perez-Mirabet, L.; Meledin, A.; De Roo, J.; Valles, F.; Mundet, B.; Rijckaert, H.; Pollefeyt, G.; Coll Bau, M.; Ricart, S.; Palau, A.; Gazquez, J.; Ros, J.; Van Tendeloo, G.; Van Driessche, I.; Puig, T.; Obradors, X.\* *Epitaxial YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> nanocomposite thin films from colloidal solutions*. **Superconductor Science and Technology** (2015), 28, 124007
36. Tessier, M. D.; Dupont, D.; De Nolf, K.; De Roo, J.; Hens, Z.\* *Economic and Size-tunable Synthesis of InP/ZnE (E = S, Se) Colloidal Quantum Dots*. **Chemistry of Materials** (2015), 27, 4893.
37. De Keukeleere, K.; De Roo, J.; Lommens, P.; Martins, J. C.; Van der Voort, P.; Van Driessche, I.\* *Fast and Tunable Synthesis of ZrO<sub>2</sub> Nanocrystals: Mechanistic Insights into Precursor Dependence*. **Inorganic Chemistry** (2015), 54 (7), 3469-3476
38. De Keukeleere, K.; Pollefeyt, G.; Feys, J.; De Roo, J.; Rijckaert, H.; Lommens, P.; Van Driessche, I.\* *Chemical solution deposition of functional ceramic coatings using ink-jet printing*. **Pure and Applied Chemistry** (2015), 87 (3), 231-238.

39. Geltmeyer, J.; De Roo, J.; Van den Broeck, F.; Martins, J.; De Buysser, K.; De Clerck, K.\* *The influence of tetraethoxysilane sol preparation on the electrospinning of silica nanofibers*. **Journal of Sol-Gel Science and Technology** (2015), 1.
40. De Roo, J.; Van den Broeck, F.; De Keukeleere, K.; Martins, J. C.; Van Driessche, I.; Hens, Z.\* *Unravelling the Surface Chemistry of Metal Oxide Nanocrystals, the Role of Acids and Bases*. **Journal of the American Chemical Society** (2014), 136 (27), 9650-9657.
41. De Roo, J., De Keukeleere, K., Feys, J., Lommens, P., Hens, Z., Van Driessche, I.\* *Fast, microwave-assisted synthesis of monodisperse HfO<sub>2</sub> nanoparticles*. **Journal of Nanoparticle Research** (2013), 15, 11 pages
42. De Keukeleere, K., Feys, J., Meire, M., De Roo, J., De Buysser, K., Lommens, P., Van Driessche, I.\* *Solution-based synthesis of BaZrO<sub>3</sub> nanoparticles: conventional versus microwave synthesis*. **Journal of Nanoparticle Research** (2013) 15, 12 pages

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## OTHER PUBLICATIONS

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1. De Roo, J., *Youth Views on Sustainability: Size Matters, But So Does Speed*. **Chemistry International** (2014) pp 14-15.

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## PATENT FAMILIES

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1. WO2016139101  
Hemgesberg, Maximilian; Schwall, Denis; Staudt, Thorsten; Van Driessche, Isabel; De Keukeleere, Katrien; De Roo, Jonathan; Gruending, Till; Maier, Matthias; Baecker, Michael; Bennewitz, Jan; Feenstra, Ron.  
*Nanoparticles for the Use as Pinning Centers in Superconductors*  
(countries: US/KR/CN/JP/EP)
2. WO2016139013  
Van Driessche, Isabel; De Keukeleere, Katrien; De Roo Jonathan; Hens, Zeger  
*Process for Producing Crystalline Tantalum Oxide Particles*  
(countries: US/KR/CN/JP/EP)
3. WO2018130504  
Hemgesberg, Maximilian; Lizandara, Carlos; Bennewitz, Jan; Meyer, Armin; Schunk, Stephan; Emmert, Timo; Van Driessche, Isabel; De Keukeleere, Katrien; Rijckaert, Hannes; Pollefeyt, Glen; De Roo, Jonathan  
*Process For Producing Nanoparticles*

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## CONFERENCE ABSTRACTS (only first author contributions are listed)

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1. Jonathan De Roo. The surface chemistry of nanocrystals. (2019, October 10-11) ICON symposium, Lecce (Italy). **Invited Talk**
2. Jonathan De Roo, Soham Banerjee, Hannes Rijckaert, Katrien De Keukeleere, Fabien Delpech, Yannick Coppel, Zeger Hens, Isabel Van Driessche, Jonathan Owen, Simon Billinge. *Total structure of ZrO<sub>2</sub> nanocrystals synthesized in tri-n-octylphosphine oxide*. (2019, May 27-31) E-MRS, Nice (France). **Talk**
3. Jonathan De Roo, Nuri Yazdani, Emile Drijvers, Alessandro Lauria, Jorick Maes, Isabel Van Driessche, Markus Niederberger, Vanessa Wood, Jose Martins, Ivan Infante, Zeger Hens. *Probing solvent penetration in nanocrystal ligand shells by NMR line broadening*. (2019, May 27-31) E-MRS, Nice (France). **Talk**

4. Jonathan De Roo, Jiaying Wang, Zimu Zhou, Isabel Van Driessche, Alfred Crosby, Jonathan Owen, Stephen Nonnenmann. *Application of hafnium oxide nanocrystals in memristors; optimization through surface chemistry* (2019, May 27-31) E-MRS, Nice (France). **Poster**
5. Jonathan De Roo, Nuri Yazdani, Emile Drijvers, Alessandro Lauria, Jorick Maes, Isabel Van Driessche, Markus Niederberger, Vanessa Wood, Jose Martins, Ivan Infante, Zeger Hens. *Probing solvent penetration in nanocrystal ligand shells by NMR line broadening*. (2018, July 15-20) Gordon Research Conference, Smithfield (USA). **Poster**.
6. Jonathan De Roo, Hannes Rijckaert, Katrien De Keukeleere, Zeger Hens, Jose C. Martins, Isabel Van Driessche. *Optimizing YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> superconducting Nanocomposites through Nanocrystal Surface Chemistry*. (2018, March 18-22) ACS national meeting, New Orleans (USA). **Talk**.
7. Jonathan De Roo, Katrien De Keukeleere, Fabien Delpech, Yannick Coppel, Isabel Van Driessche, José C. Martins, Jonathan Owen, Zeger Hens. *The Surface Chemistry of Group 4 Metal Oxide Nanocrystals*. (2018, March 18-22). ACS national meeting, New Orleans (USA). **Talk**.
8. Jonathan De Roo, Maria Ibáñez, Pieter Geiregat, Georgian Nedelcu, Willem Walravens, Jorick Maes, José C. Martins, Isabel Van Driessche, Maksym V. Kovalenko, and Zeger Hens. *Highly Dynamic Ligand Binding and Light Absorption Coefficient of Cesium Lead Bromide Perovskite Nanocrystals*. (2018, March 18-22). ACS national meeting, New Orleans (USA). **Invited talk**.
9. Jonathan De Roo, Isabel Van Driessche, José Martins, Zeger Hens. *Colloidal metal oxide nanocrystal catalysis by sustained chemically driven ligand displacement*. (2017, Feb 25-26) GRS Nanomaterials for applications in energy, Ventura (USA). **Talk**.
10. Jonathan De Roo, Isabel Van Driessche, José Martins, Zeger Hens. *Colloidal metal oxide nanocrystal catalysis by sustained chemically driven ligand displacement*. (2017, Feb 26 - Mar 3) GRC Nanomaterials for applications in energy, Ventura (USA). **Poster**.
11. Jonathan De Roo, Sofie Coucke, Hannes Rijckaert, Katrien De Keukeleere, Davy Sinnaeve, Zeger Hens, José Martins, Isabel Van Driessche. *Amino acid based stabilization of oxide nanocrystals in polar media; from insight in ligand exchange to solution <sup>1</sup>H NMR probing of small adsorbates*. (2016, May 2-6) E-MRS, Lille (France). **Poster rewarded with Umicore poster prize**.
12. Jonathan De Roo, Maria Ibanez, Pieter Geiregat, Georgian Nedelcu, Willem Walravens, Jorick Maes, José Martins, Isabel Van Driessche, Maksym Kovalenko, Zeger Hens. *Highly Dynamic Ligand Binding and Light Absorption Coefficient of Cesium Lead Bromide Perovskite Nanocrystals*. (2016, May 2-6) E-MRS, Lille (France). **Poster**.
13. Jonathan De Roo, Isabel Van Driessche, José Martins, Zeger Hens. *Colloidal metal oxide nanocrystal catalysis by sustained chemically driven ligand displacement*. (2016, May 2-6) E-MRS, Lille (France). **Talk**.
14. Jonathan De Roo, Isabel Van Driessche, José Martins, Zeger Hens. *Colloidal metal oxide nanocrystal catalysis by sustained chemically driven ligand displacement*. (2016, April 4-8) Nanax7, Marburg (Germany). **Talk**.
15. Jonathan De Roo, Freya Van den Broeck, Yolanda Justo, Katrien De Keukeleere, José Martins, Isabel Van Driessche and Zeger Hens. *The surface chemistry of metal oxide nanocrystals, how protons change the game*. (2015, April 6-10) MRS spring meeting, San Francisco (USA). **Talk**.
16. Jonathan De Roo, Freya Van den Broeck, Katrien De Keukeleere, José Martins, Isabel Van Driessche and Zeger Hens. *The surface chemistry of metal oxide nanocrystals; a solution NMR study*. (2014, November 24-25) YBMRS annual meeting, Spa (Belgium). **Talk rewarded with presentation prize**.
17. Jonathan De Roo, Freya Van den Broeck, Katrien De Keukeleere, José Martins, Isabel Van Driessche and Zeger Hens. *The surface chemistry of metal oxide nanocrystals: theory and applications*. (2014, October 23) Belgian Ceramic Society Annual meeting. Gent (Belgium). **Talk**.



18. Jonathan De Roo, Katrien De Keukeleere, Jonas Feys, Petra Lommens, Zeger Hens and Isabel Van Driessche. *Fast, microwave assisted synthesis of monodisperse refractory metal oxide nanoparticles* (2014, May 26-30) E-MRS spring meeting. Lille (France). **Poster.**
19. Jonathan De Roo, Freya Van den Broeck, Katrien De Keukeleere, José Martins, Isabel Van Driessche and Zeger Hens. *Understanding the surface chemistry of metal oxide nanocrystals as pinning centers in ink-jet printed  $YBa_2Cu_3O_{7-x}$  thin films.* (2014, May 26-30) E-MRS spring meeting. Lille (France). **Talk.**
20. Jonathan De Roo, Katrien De Keukeleere, Jonas Feys, Petra Lommens, Isabel Van Driessche. *Synthesis of  $Ta_2O_5$ ,  $HfO_2$  and  $BaHfO_3$  nanoparticles as artificial pinning centers in YBCO.* (2013, September 15-19) European Conference on Applied Superconductivity, Genova (Italy). **Poster.**
21. Jonathan De Roo, Katrien De Keukeleere, Jonas Feys, Petra Lommens, Zeger Hens, Isabel Van Driessche. *Synthesis of  $BaZrO_3$ ,  $Ta_2O_5$  and  $HfO_2$  nanoparticles as artificial pinning centers in High Temperature Superconductors.* (2013, march 6-9) JCF frühjahrssymposium, Berlin (Germany). **Talk rewarded with presentation prize.**
22. Jonathan De Roo, Katrien De Keukeleere, Jonas Feys, Petra Lommens, Isabel Van Driessche. *Synthesis of  $Ta_2O_5$  and  $HfO_2$  nanoparticles as artificial pinning centers in YBCO,* (2012, November 13-16) Conference on Coated Conductors for Applications, Heidelberg (Germany). **Poster.**