

Laura Rossi

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Academic positions

Assistant Professor Delft University of Technology, the Netherlands [Aug '18 - present]

Veni fellow University of Amsterdam, the Netherlands [Aug '15- July '18]

Postdoctoral researcher University of Amsterdam, the Netherlands under the supervision of Prof. Peter Schall [Feb '15-July '15]

Postdoctoral scholar University of California-Los Angeles, USA under the supervision of Prof. Thomas G. Mason, partially funded by a Rubicon grant from the Netherlands Organisation for Scientific Research (NWO) [Jan '13-Dec '14]

Education

Ph.D. van't Hoff Laboratory for Physical and Colloid Chemistry, Utrecht University, the Netherlands under the supervision of Prof. Albert P. Philipse and Prof. William T. M. Irvine (University of Chicago). Thesis title: *Colloidal Superballs*. Defense date: 11 June 2012. [Jun '08-Jun '12]

Visiting student Center for Soft Matter Research, Department of Physics, New York University, U.S.A. [Oct '09-Dec '09]

M.Sc. Chemistry and Physics 'cum laude' (with honors), Utrecht University, the Netherlands. [Nov '05-Jan '08]

Internship at Unilever R&D, Vlaardingen, the Netherlands. [May '07-Oct '07]

B.Sc. in Chemical Sciences, University of Pavia, Italy. [Oct '02-Oct '05]

Grants and honors

2015 Netherlands Organisation for Scientific Research (NWO) Veni grant for the development of an independent line of research for a period of three years at the University of Amsterdam (€ 250 000).

2014 APS funding to attend the Professional Skills Development Workshop for Women Physicists in Denver, Colorado, USA (\$ 400).

- 2013** Netherlands Organisation for Scientific Research (NWO), partial Rubicon grant for a stay of 24 months in the USA at UCLA (\$ 87000).
- 2008** Master of Science in Physical chemistry with honors from Utrecht University.
- 2006** First poster prize at NWO/CW Meeting on Liquids and Interfaces.
- 2004** European Union, ERASMUS student scholarship, Exchange Project BSc-thesis, for a stay of 10 months at Utrecht University.
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Publications

Manuscripts in preparation/submitted

4. M. P. van der Helm, C.-L. Wang, R. W. Lewis, S. Schyck, **L. Rossi** and R. Eelkema *Transient colloid assembly by fuel-driven modulation of depletion interactions*. submitted, ChemRxiv: 13150679.
3. J. G. Donaldson, P. Schall and **L. Rossi** *Magnetic coupling in colloidal clusters for hierarchical self-assembly*, submitted, <https://arxiv.org/abs/2009.14669>.
2. L. Baldauf, E. G. Teich, G. van Anders, P. Schall and **L. Rossi** *Colloidal clusters of superballs in confinement*, in preparation, <http://arxiv.org/abs/1909.10361>.
1. J.-M. Meijer and **L. Rossi** *Preparation, structure, and properties of magnetic hematite microparticles*. submitted.

Refereed Journal Articles

17. Y. C. Saraswat, F. Ibis, **L. Rossi**, L. Sasso, H. B. Eral and P. Fanzio *Shape anisotropic colloidal particle fabrication using 2-photon polymerization*, *Journal of Colloid and Interface Science*, 564, 43-51 (2020).
16. **L. Rossi**, J.G. Donaldson, J.-M. Meijer, A. V. Petukhov, D. Kleckner, S.S. Kantorovich, W. T. M. Irvine, A. P. Philipse and S. Sacanna *Self-organization in dipolar cube fluids constrained by competing anisotropies*, *Soft Matter*, 14, 1080-1087 (2018).
Work featured on the [journal cover](#).
15. **L. Rossi**, V. Soni, D. J. Ashton, D. J. Pine, A. P. Philipse, P. M. Chaikin, M. Dijkstra, S. Sacanna and W. T. M. Irvine *Shape-sensitive crystallization in colloidal superball fluids*, *Proc. Natl. Acad. Sci. U. S. A.*, 112(17), 5286-5290 (2015).
14. **L. Rossi** and T. G. Mason *Controlling enantiomeric populations in fluctuating Brownian monolayers of chiral colloids*, *Soft Matter*, 11, 2461-2468 (2015).
13. **L. Rossi**, K. P. Velikov and A. P. Philipse *Colloidal iron(III) pyrophosphate particles*, *Food Chemistry*, 151, 243-247 (2014).
12. J.-M. Meijer, D. V. Byelov, **L. Rossi**, A. Snigirev, I. Snigireva, A. P. Philipse and A. V. Petukhov *Self-assembly of colloidal hematite cubes: a microradian X-ray diffraction exploration of sedimentary crystals*, *Soft Matter*, 9, 10729-10738 (2013).
11. D. V. Byelov, J.-M. Meijer, I. Snigireva, A. Snigirev, **L. Rossi**, E. van den Pol, A. Kuijk, A. P. Philipse, A. Imhof, A. van Blaaderen, G. J. Vroege and A. V. Petukhov *In-situ hard x-ray microscopy of self-assembly in colloidal suspensions*, *RSC Advances*, 3, 15670 (2013).
10. J.-M. Meijer, F. Hagemans, **L. Rossi**, D. V. Byelov, S. I. R. Castillo, A. Snigirev, I. Snigireva, A. P. Philipse and A. V. Petukhov *Self-assembly of colloidal cubes via vertical deposition*, *Langmuir*, 28, 7631-7638 (2012).

9. S. Sacanna, **L. Rossi** and D. J. Pine *Magnetic click colloidal assembly*, Journal of the American Chemical Society, 134, 6112-6115 (2012).
In the news: Phys.org, *Particles magnetically "click" to form superstructures*, 2012
8. **L. Rossi**, S. Sacanna, W. T. M. Irvine, P. M. Chaikin, D. J. Pine and A. P. Philipse *Cubic crystals from cubic colloids*, Soft Matter, 7, 4139-4142 (2011).
Work featured on the journal cover.
In the press: Quest, *Kleine kubus stapelt zichzelf*, April 2011
7. A. V. Kyrylyuk, M. A. van de Haar, **L. Rossi**, A. Wouterse and A. P. Philipse *Isochoric Ideality in Jammed Random Packings of Non-Spherical Granular Matter*, Soft Matter, 7, 1671-1674 (2011).
6. S. Sacanna, W. T. M. Irvine, **L. Rossi** and D. J. Pine *Lock and key colloids through polymerization-induced buckling of monodisperse silicon oil droplets*, Soft Matter, 7, 1631-1634 (2011).
Work featured on the journal cover.
5. **L. Rossi**, S. Sacanna and K. P. Velikov *Cholesteric colloidal liquid crystals from phytosterol rod-like particles*, Soft Matter, 7, 64-67 (2011).
4. **L. Rossi**, J. W. M. Seijen ten Hoorn, S. M. Melnikov and K. P. Velikov *Colloidal phytosterols: synthesis, characterization and bioaccessibility*, Soft Matter, 6, 928-936 (2010).
3. S. Sacanna, **L. Rossi** and A.P. Philipse *Oil-in-water emulsification induced by ellipsoidal hematite colloids: evidence for hydrolysis-mediated self-assembly*, Langmuir, 23(20), 9974-9982 (2007).
2. S. Sacanna, **L. Rossi**, A. Wouterse and A.P. Philipse *Observation of a shape-dependent density maximum in random packings and glasses of colloidal silica ellipsoids*, Journal of Physics: Condensed Matter, 19(37), 376108-376124 (2007).
1. S. Sacanna, **L. Rossi**, B.W.M. Kuipers and A.P. Philipse *Fluorescent monodisperse silica ellipsoids for rotational diffusion studies*, Langmuir, 22(4), 1822-1827 (2006).

Book chapters

1. **L. Rossi** *Magnetic colloids as building blocks for complex structures: preparation and assembly*, in "Self-assembly of nano- and micro-structured materials using colloidal Engineering", Ed. S. Sacanna and D. Chakrabarti, Elsevier (2019).

Others

1. "The building blocks of new materials" Article highlighting my research work in the magazine *EU Research*, WINT18/P42.

Presentations

Invited Talks:

The International Polymer Colloid Group (i-PCG) 2020 Webinar series 'Magnetic colloids: dipole-driven colloidal assembly' [Upcoming: May '20]

HYBER Symposium 2020 'Shape- and dipole-driven colloidal self-assembly', Helsinki, Finland. [May '20, cancelled due to Covid-19 pandemic]

SPC 1st Lustrum symposium 'Colloidal superballs: depletion- and dipole-driven assembly', Eindhoven, the Netherlands. [March '20]

ETH Zurich *'Effect of shape anisotropy and dipolar interactions on colloidal assembly'*, Zurich, Switzerland. [Dec '19]

25th Dutch Soft Matter Meeting *'Effect of shape anisotropy and dipolar interactions on colloidal assembly'*, Amsterdam, the Netherlands. [Nov '18]

University of Konstanz *'Self-assembly of designer colloids: shape anisotropy and directional interactions'*, Konstanz, Germany. [July '18]

ESPCI Gulliver Seminar *'Colloidal design for self-assembly of novel materials'*, Paris, France. [Nov '17]

Radboud University *'Colloidal design for self-assembly'*, Nijmegen, the Netherlands. [Feb '17]

Eindhoven University of Technology *'Directing self-assembly of colloidal superballs'*, Eindhoven, the Netherlands. [July '15]

University of California San Diego *'Colloidal superballs'*, San Diego, USA. [July '13]

University of Chicago *'Colloidal superballs'*, Chicago, USA. [March '11]

Optimal 2010 *'Observation of a shape-dependent random packing density maximum for colloidal ellipsoids'*, Optimal 2010, Vanderbilt University, Nashville, USA. [May '10]

New York University *'Random packing and colloidal crystallization of monodisperse ellipsoids'*, New York University, New York, USA. [Feb '09]

Contributed Talks:

IACIS 2018 *'Synthesis of hematite microswimmers with enhanced photoactivity'*, Rotterdam, the Netherlands. [May '18]

ECIS 2017 *'Colloidal Hematite Cubes: Magnetic Properties and Self-Assembly'*, Madrid, Spain. [Sept '17]

APS March Meeting *'Preparation and assembly of magnetic patchy colloids'*, New Orleans, USA. [Mar. '17]

Italian Soft Days *'Self-assembly of magnetic patchy particles'*, Milan, Italy. [June '16]

APS March Meeting *'Crack propagation in attractive colloidal systems'*, Baltimore, USA. [Mar. '16]

19th Soft Matter Meeting *'Self-assembly of magnetic colloids'*, Utrecht, the Netherlands. [Nov. '15]

ASGSR Annual Meeting *'Shape-sensitive crystallization in colloidal superball fluids'*, Pasadena, USA. [Oct. '14]

ACS Colloids & Surface Science Symposium *'Shape-sensitive crystallization in colloidal superball fluids'*, Philadelphia, USA. [June '14]

Physics@FOM *'Depletion stabilized crystal phases of colloidal superballs'*, Veldhoven, the Netherlands. [Jan. '12]

Chains: chemistry as innovating science *'Colloidal superballs'*, Maarsse, the Netherlands. [Nov. '11]

APS March Meeting *'Cubic crystals from cubic colloids'*, Dallas, USA. [Mar. '11]

9th Soft Matter Meeting *'Cubic crystals from cubic colloids'*, Leiden, the Netherlands. [Nov. '10]

ECIS 2010 '*Depletion driven crystallization of colloidal cubes*', Prague, Czech Republic. [Sept. '10]

ICSCS 2009 '*Random packing and colloidal crystallization of monodisperse model ellipsoids*', Columbia University, New York, USA. [June '09]

Commissions of trust

Member of the NWO KLEIN Domain Science Selection Committee (2020)

Member of the NWO Advisory Committee for the "Physics of Fluids and Soft Matter" research community (2018 - present)

Member of the Works Council (OR) committee of the Faculty of Applied Sciences (2018 - present)

Outreach and vocational activities

Career Event KNCV (Royal Netherlands Chemical Society) '*Research in academia*', Leiden, the Netherlands. [Feb '20]

Laboratory project with Amsterdam International Community School '*Discovering NMR*'. [Feb '20]

Laboratory project with Amsterdam International Community School '*Colloid Science: playing with magnetic fluids*'. [June '16, July '17, July '18]

Talk at "Viva Fysica!" '*Colloid Science: from magnetism to novel materials*', Amsterdam, the Netherlands. [Jan. '17]

Professional training

University Teaching Qualification (BKO), University of Amsterdam, NL. [Completed Jan. '18]

Personal Leadership in an Academic Context (for Veni laureates), University of Amsterdam, NL. [Apr. '16 - Jan. '17]

Preparing Future Faculty: Issues in Higher Education, University of California Los Angeles, USA. [Fall '14]

APS Professional Skills Development Workshop for Women Physicists, Denver, Colorado, USA. [March '14]

Career Planning as a Process, University of California Los Angeles, USA. [Nov. '13]

Women in Science and Engineering, University of California Los Angeles, USA. [Nov. '13]

Funding Your Research - How to Get Started, University of California Los Angeles, USA. [Oct. '13]

Activating didactics in an intercultural perspective, Utrecht University, the Netherlands. [Jan. '11]

Teaching

Lecturer. Graduate chemical engineering course '*Advanced Interfacial Engineering*', TU Delft. [2019-2020]

Lecturer. Graduate chemical engineering course '*Molecular Transport Phenomena*', TU Delft. [2018-2019]

Guest lecturer. Graduate physics and chemistry course '*Colloid Science*', Utrecht University. [Oct '17]

Lecturer. Graduate physics course '*Hydrodynamics*', University of Amsterdam. [Feb-March '17]

Guest lecturer. Undergraduate chemistry course '*Chemical Structure*', UCLA. [Oct '14]

Project design and daily supervision. Six full time master students (UvA and Utrecht University), three full-time bachelor students (Uva and Utrecht University), two full time internship students (UvA).

Design and supervision. Laboratory project for first year chemistry students '*Colloids with magnetic patches, synthesis and self-assembly*', Utrecht University. [Jun '11-Jul '11]

Design and supervision. Laboratory project for second year chemistry students '*Colloidal cubes*', Utrecht University. [Apr '10-Jun '10]

Teacher. Laboratory course '*Synthesis and Spectroscopy*', Utrecht University. [March '09 and March '10]

Professional activities

Since Nov. 2020 Editorial Board Member of the *Journal of Colloids and Interface Science Open*.

Nov 2020 Member of Advisory Appointment Committee (BAC) for three tenure track candidates in the Faculty of Applied Sciences.

May-Oct 2020 Member of Advisory Appointment Committee (BAC) for five tenure track candidates in the Faculty of Aerospace Engineering.

April 2019 Member of PhD defense committee (Karsten Baumgarten, Delft University of Technology, the Netherlands)

Since 2019 Member of various MSc and BSc defense committees at TU Delft.

Since 2019 Organizer of Chemical Engineering Faculty Colloquium at TU Delft.

Since 2012 Reviewer activity for scientific journals: *Soft Matter*, *Journal of Physics D: Applied Physics*, *Colloid and Surfaces A: Physicochemical and Engineering Aspects*, *Journal of Visualized Experiments*, *Nanoscale*, *Langmuir*, *Journal of the American Chemical Society*