CV - Nerea Sebastian Ugarteche

Web of Science Researcher Identifier: J-8233-2015
https://orcid.org/0000-0002-9156-1895

PERSONAL DATA

Name: Nerea
Surname: Sebastián Ugarteche
Nationality: Spanish

Education

2012 - Ph.D. in Physics
Advisor: Prof. María Rosario de la Fuente
"Physical properties of liquid crystal dimers: calamitics and bent-shaped"
Qualification: Cum Laude
Department of Applied Physics II, Faculty of Science and Technology, University of the Basque Country UPV-EHU, Bilbao, Spain

2003-2008 Spanish "Licenciado en Física" (Bch+Mstr)
Faculty of Science and Technology, University of the Basque Country UPV-EHU, Bilbao, Spain

Employment

2018 - Now Researcher, Department of Complex Matter, Jožef Stefan Institute, Ljubljana, Slovenia

(2016 - 2018) Marie Sklodowska Curie Postdoctoral Research Fellow Department of Complex Matter, Jožef Stefan Institute, Ljubljana, Slovenia

(2014 - 2016) Postdoctoral Position - Humboldt Postdoctoral Researcher Department of Nonlinear Phenomena, Otto von Guericke University, Magdeburg, Germany

(2013- 2014) Postdoctoral Position Liquid Crystal group, University of the Basque Country UPV-EHU, Spain

(2009- 2012) FPI PhD Student, University of the Basque Country, UPV-EHU

Academic and scientific titles

- "Senior Research Associate", Jožef Stefan Institute
- Spanish National Agency for Quality Evaluation and Accreditation (Agencia Nacional de la Evaluación de la calidad y acreditación-ANECA): "Profesor Contratado Doctor" (Associate Professor- Tenured), equivalent to Znanstveni sodelavec.

Management functions

Oct 2022 – now: Elected member of the recently stabilised "Council of Early Career Researchers" of the Jožef Stefan Institute (SZK – Sveta razilkovalk in raziskovalcev na Začetku Kariere). Role of members of SZK is to represent younger IJS researchers in the IJS's working bodies and to support the younger community in their career development.

Mentorship and teaching

- Currently PhD co-advisor of 1 student
- Co-advisor of 2 finished master's student.
- Teaching Assistant During the academic periods 2010-2011 and 2011-2012 of the subject "Experimental Techniques I" of the Degree of Physics (B.Sc.) in the University of the Basque Country UPV-EHU (Spain).

Awards

- 2024 Blicn Award for for outstanding, one-time achievement fort he paper N. Sebastian, L. Cmok, R.J. Mandle, M.R. de la Fuente, I. Drevenšek-Olenik, M. Čopič and A. Mertelj, "Ferroelectric-ferroelastic phase transition in a nematic liquid crystal". Phys. Rev. Lett., 2020, 124, 037801-1-037801-6.
- Daniel Vorländer Lecture 2023 Awarded by the German Liquid Crystal Society to young scientists with exceptional achievements in the field of liquid crystals.
- PhD Extraordinary Award Granted by the University of the Basque Country to the best PhDs defended during the academic year 2012/2013.

Summary of publications

https://orcid.org/0000-0002-9156-1895
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58 Scientific papers, of which 17 as first author, 2 as leading author.
Two first-author contributions (recent selected contributions 7 and 10) with the following Essential Science Indicators from WoS: As of September/October 2024, this highly cited paper received enough citations to place it in the top 1% of the academic field of Physics based on a highly cited threshold for the field and publication year.
1540 without self-citations "Web of Science citation report" and h-index : 22

Recent selected publications

1. P. Medle Rupnik, E. Hanžel, M. Lovšin, N. Osterman, C. J. Gibb, R. J. Mandle, N. Sebastián and A. Mertelj, ***Advanced Science***, **2025**, n/a, 2414818.

2. V. Sultanov, A. Kavčič, M. Kokkinakis, N. Sebastián, M. V. Chekhova and M. Humar, "Tunable entangled photons from liquid crystals", ***Nature***, **2024**, 631, 294-299.

3. M. Lovšin, A. Petelin, B. Berteloot, N. Osterman, S. Aya, M. Huang, I. Drevenšek-Olenik, R. J. Mandle, K. Neyts, A. Mertelj and N. Sebastian, ***Giant***, **2024**, 19, 100315.

4. P. Medle Rupnik, L. Cmok, N. Sebastián and A. Mertelj, "Viscous Mechano-Electric Response of Ferroelectric Nematic Liquids" ***Advanced Functional Materials***, **2024**, 34, 2402554. (cit. 2)

5. A. Erkoreka, J. Martinez-Perdiguero, R. J. Mandle, A. Mertelj and N. Sebastián, "Dielectric spectroscopy of a ferroelectric nematic liquid crystal and the effect of the sample thickness" ***Journal of Molecular Liquids***, **2023**, 387, 122566.

6. N. Sebastián, M. Lovšin, B. Berteloot, N. Osterman, A. Petelin, R. J. Mandle, S. Aya, M. Huang, I. Drevenšek-Olenik, K. Neyts and A. Mertelj, "Polarization patterning in ferroelectric nematic liquids via flexoelectric coupling", ***Nature Communications***, **2023**, 14, 3029. **Selected as Editor's Highlight.**

7. N. Sebastian, M. Čopič and A. Mertelj, "Ferroelectric nematic liquid-crystalline phases", (**Perspectives series**), ***Phys. Rev. E.***, 2022, 106, 021001-1-021001-27.

8. N. Sebastian, R.J. Mande, A. Petelin, A. Eremin and A. Mertelj, "Electrooptics of mm-scale polar domains in the ferroelectric nematic phase". ***Liquid Crystals***. 2021, 48, 14, 2055-2071. **Finalist of the 2021 Luckhurst-Samulski Prize**.

9. R.J. Mande, N. Sebastian, J. Martinez-Perdiguero and A. Mertelj, "On the molecular origins of the ferroelectric splay nematic phase". ***Nature Communications***. 2021, 12, 4962-1-4962-12.

10. N. Sebastian, L. Cmok, R.J. Mandle, M.R. de la Fuente, I. Drevenšek-Olenik, M. Čopič and A. Mertelj, "Ferroelectric-ferroelastic phase transition in a nematic liquid crystal". ***Phys. Rev. Lett.***, 2020, 124, 037801-1-037801-6. **Featured as Editor's suggestion and in Physics Today.**

Research projects as a project recipient

- ARRS J1-2459: "Lima: Fundamental studies of ferromagnetic order in liquids" (2020-now).
- "MagNem: Hydrodynamics of Ferromagnetic Nematic Liquid Crystals" - Marie Curie Individual Fellowship (Project No. 701558) (2016-2018)
- "Twend: Spontaneous Twist and Bend Deformation on Nematic Phases with Non-uniform Ground State" Postdoctoral Research Project - Alexander von Humboldt Foundation, Germany (2014-2016)

Peer recognition

Invited talks at conferences as presenting author:

- M. Lovšin, A. Petelin, B. Berteloot, N. Osterman, S. Aya, M. Huang, I. Drevenšek-Olenik, R. J. Mandle, K. Neyts, A. Mertelj, N. Sebastian. Ferroelectric nematics for complex non-linear optical structures, 17th European Conference on Liquid Crystals, Prague (Czech Republic), June 2025
- N. Sebastian. Polarization structuring in ferroelectric nematic phases. Rank Prize Symposium "New switching modes in liquid crystas- potential of the ferroelectric nematic phase", Ullswater (UK), June 2025
- N. Sebastian, D. Lisjak, M. Čopič, A. Mertelj. Ferromagnetic liquid crystals: static and dynamic properties. V: *16th Int. Conf. on Ferroelectric Liq. Cryst., Hong Kong*. 2017.
- N. Sebastian, M. Lovšin, N. Osterman, B. Berteloot, R.J. Mandle, M. Huang, S. Aya, A. Petelin, K. Neyts, I. Drevenšek-Olenik, A. Mertelj. "Ferroelectric nematic phase: from the discovery to the shaping of polarization." 12. konferenca fizikov v osnovnih raziskavah: zbornik povzetkov : Terme Čatež, 2022.

Additionally, 10 contributed oral presentations.

Invited lectures at foreign institutions:

- "Ferroelectric nematic liquid crystalline phase", Faculty of Physics, University of Viena, 2022.
- "Ferroelectric nematic phase: from the discovery to shaping polarization", Invited lecture at the Soft Matter Seminar Series, Department of Physics, University of Leeds, 2022.
- "Polar nematic phases", Department of Soft Matter, Institut für Physik, Otto-von-Guericke Universität, Magdeburg, Germany. 2019

Other contributions to the research community

- 2024 – Jury of the International Liquid Crystal Society "Picture of the Month" scientific art contest.
- May 2024 – Chair of the international "Workshop on Ferroelectric Nematic Liquid Crystals", 29-31 May 2024.
- 2021- Conference Vice-Chair of the 18th International Conference on Ferroelectric Liquid Crystals (FLC2021).
- 2019 – Now, Coordinator of Complex Matter department (IJS) seminars