Egor Bersenev

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Work experience

2024-2025 **Visiting researcher**, *European Synchrotron Radiation Facility*, Grenoble, France
Complex and biomedical sciences group, ID10 beamline

- Support of external facility users from industrial and public research
- Validation of structural parameters of long-lasting antimicrobial coatings

2021-2024 **Doctoral researcher**, *European Synchrotron Radiation Facility*, Grenoble, France
Complex and biomedical sciences group, ID10 beamline

- Project: Optimising antimicrobial longevity and residuality of polymer-surfactant films
- I have planned and executed experiments to establish the composition-structure relationship in polymer-surfactant mixtures in aqueous solution and on the interfaces using X-ray, neutron and light scattering. Project included a 2 month industrial placement at Procter & Gamble Research UK (Newcastle upon Tyne).
- Supervisor: Dr. Oleg Konovalov, ESRF, konovalo@esrf.fr;
  Supervisor: Prof. Dr. Wuge H. Briscoe, University of Bristol, wuge.briscoe@bristol.ac.uk

2018-2021 **Research Associate, Laboratory manager**, *Moscow State University*, Moscow, Russia
Laboratory of functional organic and hybrid polymer systems

- Project: Investigation of biomimetic bottlebrush polymers using *in situ* X-ray scattering
- This project was focused on deducing the structure-property connection in bottlebrush-like block copolymers with various architectures. We have gained mechanistic insight into the unique mechanical properties of the bottlebrush copolymers, using a combination of X-ray scattering and thermal analysis, including ultra fast scanning calorimetry
- Supervisor: Prof. Dr. Dimitry Ivanov, IS2M Mulhouse, dimitri.ivanov@uha.fr

Education

2021-2025 **PhD in Chemistry**, *University of Bristol*, Bristol, England
Thesis: Polymer-surfactant complexation: connecting solution structure and interfacial properties

2019-2021 **Master of Science**, *Moscow Institute of Physics and Technology*, Moscow,Russia
School of Electronics, Photonics and Molecular Physics, degree with honours

2015-2019 **Bachelor of Science**, *Moscow Institute of Physics and Technology*, Moscow,Russia
Department of Molecular and Chemical Physics, degree with honours

Skills

Language	English (C2), French (B2), German (B1), Russian (native)
Keywords	X-ray scattering, polymers, soft matter physics, self-assembly
ORCID	0000-0001-5609-7794
Computing	Python, Linux, LaTeX
GitHub	chelberseker

Conference presentations

2024 Tuning weak polymer-surfactant interaction in solution and surface confined mesophase
Conference of European Colloids and Interface Society; Copenhagen, Denmark; Oral presentation

2024 Surface-confined polymer-surfactant complexes: highlighting hydrophobic interaction
Surface X-ray and Neutron Scattering conference; Grenoble, France; Oral presentation

2024 Aggregation of hydrophobically modified polymer with anionic surfactant: solution structure
Early Career Colloids conference; London, England; Oral presentation

2023 Polymer-surfactant interaction: connection between confinement and bulk
ESRF Science and Student days; Val Cenis, France; Oral presentation

2023 Polymer-surfactant interaction: connection between confinement and bulk
Conference of European Colloids and Interface Society; Naples, Italy; Poster presentation

2023 Surface-confined polymer-surfactant mesophase beyond lamellar
M4 Colloids conference; Cardiff, Wales; Oral presentation

2019 Structural study of super-soft bottlebrush polymers using X-ray scattering
ANAM-2019 Conference; Yerevan, Armenia; Oral presentation

Publication list

1. Bersenev, E. A., Gutfreund, P., Rein, V., Chumakov, A., Konovalov, O. V. & Briscoe, W. H. Humidity induced structural transformation in self-organised polymer-surfactant multilayer nanofilms. *Langmuir* **41 (43),** 29335–29345. https://pubs.acs.org/doi/10.1021/acs.langmuir.5c04237 (Oct. 2025).
2. Bersenev, E. A., Matthews, L., Rein, V., Fong, R. J., Konovalov, O. V. & Briscoe, W. H. Balance of hydrophobic and electrostatic interaction of polymers and surfactants: Case of anionic surfactant and hydrophobically modified polymer. *Journal of Colloid and Interface Science* **693,** 137572. ISSN: 0021-9797. https://www.sciencedirect.com/science/article/pii/S0021979725009634 (Sept. 2025).
3. Dashtimoghadam, E., Maw, M., Keith, A. N., Vashahi, F., Kempkes, V., Gordievskaya, Y. D., Kramarenko, E. Y., Bersenev, E. A., Nikitina, E. A., Ivanov, D. A., Tian, Y., Dobrynin, A. V., Vatankhah-Varnosfaderani, M. & Sheiko, S. S. Super-soft, firm, and strong elastomers toward replication of tissue viscoelastic response. en. *Materials Horizons* **9.** Publisher: The Royal Society of Chemistry, 3022–3030. ISSN: 2051-6355. https://pubs.rsc.org/en/content/articlelanding/2022/mh/d2mh00844k (Nov. 2022).
4. Bersenev, E. A., Nikitina, E. A., Dashtimoghadam, E., Sheiko, S. S. & Ivanov, D. A. Bottlebrush Elastomers with Crystallizable Side Chains: Monitoring Configuration of Polymer Backbones in the Amorphous Regions during Crystallization. *ACS Macro Letters* **11.** Publisher: American Chemical Society, 1085–1090. https://doi.org/10.1021/acsmacrolett.2c00394 (Sept. 2022).
5. Maw, M., Morgan, B. J., Dashtimoghadam, E., Tian, Y., Bersenev, E. A., Maryasevskaya, A. V., Ivanov, D. A., Matyjaszewski, K., Dobrynin, A. V. & Sheiko, S. S. Brush Architecture and Network Elasticity: Path to the Design of Mechanically Diverse Elastomers. *Macromolecules* **55.** Publisher: American Chemical Society, 2940–2951. ISSN: 0024-9297. https://doi.org/10.1021/acs.macromol.2c00006 (Apr. 2022).
6. Liontos, G., Manesi, G.-M., Moutsios, I., Moschovas, D., Piryazev, A. A., Bersenev, E. A., Ivanov, D. A. & Avgeropoulos, A. Synthesis, Molecular Characterization, and Phase Behavior of Miktoarm Star Copolymers of the ABn and AnB (n = 2 or 3) Sequences, Where A Is Polystyrene and B Is Poly(dimethylsiloxane). *Macromolecules* **55.** Publisher: American Chemical Society, 88–99. ISSN: 0024-9297. https://doi.org/10.1021/acs.macromol.1c01863 (Jan. 2022).
7. Barinov, N. A., Tolstova, A. P., Bersenev, E. A., Ivanov, D. A., Dubrovin, E. V. & Klinov, D. V. Molecular patterns of oligopeptide hydrocarbons on graphite. *Colloids and Surfaces B: Biointerfaces* **206,** 111921. ISSN: 0927-7765. https://www.sciencedirect.com/science/article/pii/S0927776521003659 (Oct. 2021).
8. Christakopoulos, F., Bersenev, E., Grigorian, S., Brem, A., Ivanov, D. A., Tervoort, T. A. & Litvinov, V. Melting-Induced Evolution of Morphology, Entanglement Density, and Ultradrawability of Solution-Crystallized Ultrahigh-Molecular-Weight Polyethylene. *Macromolecules* **54.** Publisher: American Chemical Society, 5683–5693. ISSN: 0024-9297. https://doi.org/10.1021/acs.macromol.1c00667 (June 2021).
9. Miskaki, C., Moutsios, I., Manesi, G.-M., Artopoiadis, K., Chang, C.-Y., Bersenev, E. A., Moschovas, D., Ivanov, D. A., Ho, R.-M. & Avgeropoulos, A. Self-Assembly of Low-Molecular-Weight Asymmetric Linear Triblock Terpolymers: How Low Can We Go? en. *Molecules* **25.** Number: 23 Publisher: Multidisciplinary Digital Publishing Institute, 5527. ISSN: 1420-3049. https://www.mdpi.com/1420-3049/25/23/5527 (Jan. 2020).
10. Zhang, D., Dashtimoghadam, E., Fahimipour, F., Hu, X., Li, Q., Bersenev, E. A., Ivanov, D. A., Vatankhah-Varnoosfaderani, M. & Sheiko, S. S. Tissue-Adaptive Materials with Independently Regulated Modulus and Transition Temperature. en. *Advanced Materials* **32,** 2005314. ISSN: 1521-4095. https://onlinelibrary.wiley.com/doi/abs/10.1002/adma.202005314 (2020).
11. Keith, A. N., Clair, C., Lallam, A., Bersenev, E. A., Ivanov, D. A., Tian, Y., Dobrynin, A. V. & Sheiko, S. S. Independently Tuning Elastomer Softness and Firmness by Incorporating Side Chain Mixtures into Bottlebrush Network Strands. *Macromolecules* **53.** Publisher: American Chemical Society, 9306–9312. ISSN: 0024-9297. https://doi.org/10.1021/acs.macromol.0c01725 (Nov. 2020).

12. Bersenev, E. A., Maryasevskaya, A., Komov, E. V., Anokhin, D. V. & Ivanov, D. A. Exploring the Complexation of Counterion in Novel Family of Polyelectrolytes with Unexpected Solubility Behaviour. en. *Key Engineering Materials* **869.** Conference Name: XVI INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE «NEW POLYMER COMPOSITE MATERIALS» Publisher: Trans Tech Publications Ltd, 61–68. ISSN: 1662-9795. https://www.scientific.net/KEM.869.61 (2020).

13. Illy, N., Urayeneza, D., Maryasevskaya, A. V., Michely, L., Boileau, S., Brissault, B., Bersenev, E. A., Anokhin, D. V., Ivanov, D. A. & Penelle, J. Synthesis and Solid-State Properties of PolyC3 (Co)polymers Containing (CH2–CH2–C(COOR)2) Repeat Units with Densely Packed Fluorocarbon Lateral Chains. *Macromolecules* **52.** Publisher: American Chemical Society, 9199–9207. ISSN: 0024-9297. https://doi.org/10.1021/acs.macromol.9b01559 (Dec. 2019).

14. Tarasov, A. E., Anokhin, D. V., Propad, Y. V., Bersenev, E. A., Razorenov, S. V., Garkushin, G. V. & Badamshina, E. R. Synergetic effect of fullerene and graphene oxide nanoparticles on mechanical characteristics of cross-linked polyurethanes under static and dynamic loading. en. *Journal of Composite Materials* **53.** Publisher: SAGE Publications Ltd STM, 3797–3805. ISSN: 0021-9983. https://doi.org/10.1177/0021998319848077 (Nov. 2019).