

Artem Kovalenko

Chargé de recherche

Laboratory of Soft Matter Science and Engineering,
SIMM-UMR 7615, Sorbonne University, ESPCI-PSL, Paris

Address: 10 rue Vauquelin 75005 Paris

Phone : 33 (0) 1 40 79 46 82

Mail : artem.kovalenko@espci.fr

Professional experience :

Since 2018 Researcher, Laboratory of Soft Matter Science and Engineering, CNRS, ESPCI, Paris
2017-2018 Post-doc, SIMM-ESPCI, Paris.
2016-2017 Temporary teaching assistant (ATER), University of Bordeaux.
2014-2016 Post-doctoral fellow, CRPP-Bordeaux.

Education and diploma:

2010-2013 PhD in chemistry, Institut Charles Sadron, Strasbourg, France.
2004-2010 Bachelor and Master of science, Lomonossov Moscow State University, Russia.

Research interests and expertise:

Fabrication and mechanical properties of soft polymers, polymer sponges and nanocomposites, acoustic metamaterials, soft magnetic materials, colloidal and interfacial chemistry.

Keywords: Materials chemistry, polymers, polymer composites, soft matter mechanics, magnetism/magnetic properties, foams, emulsions, surface tension, colloids.

Research grants:

2020-2024 ANR grant JCJC MAGELAn ANR-19-CE06-00244
2023-2024 Grant of Carnot Institute IPGG C23-30 2023-067 (ANR-10-IDEX-0001-02 PSL)

Industrial contracts:

DVB technologies (2020), Colas (2022), Saint Gobain Research Paris (2023).

Teaching experience:

2021-2023 scientific projects in team (PSE), statistical physics, ESPCI,
2021, 2023 transport phenomena in drying, Master SGM-MADI PSL
2016-2017 thermodynamics, solution equilibria, inorganic materials, phase transitions, colloids and interfaces, University of Bordeaux.

PhD and postdoc advisor:

2021-2024 Maxime Bès (ANR MAGELAn), co-advising with Étienne Barthel
2022-2023 Mohammad Nassar (ATER-ESPCI, postdoc ANR MAGELAn and Carnot IPGG)
2023-2026 Wei Wang (Bourse of ED397), co-advising with Étienne Barthel

External collaborations:

Franck Vernerey (University of Colorado-Boulder), Romain Valentin and Eric Lacroux (LCA-INRAE)

Selected publications:

Bès, M., Lamont, S., Dufour-Lamartinie, A., Mancer, J.-C., Olanier, L., Robert, J., Vernerey, F., Kovalenko, A. "Magnetic Marshmallows" for Soft Robotics: Magneto-Mechanical Characterization and Application in Switchable Adhesion Structures" *Soft Matter* **2025**, doi: 10.1039/D4SM01503G.

Chen, Y., Kovalenko*, A., Brûlet, A., Bresson, B., Lantheaume, A., Olanier, L., Creton, C. "Spiropyran mechano-activation in model silica-filled elastomer nanocomposites reveals how macroscopic stress in uniaxial tension transfers from filler/filler contacts to highly stretched polymer strands". *Macromolecules*, **2023**,

Alaa Eddine, M., Belbekhouche, S., de Chateauneuf-Randon, S., Thomas Salez, T., Kovalenko, A., Bresson, B., Monteux, C. "Large and non-linear permeability amplification with polymeric additives in hydrogel membranes" *Macromolecules*, **2022**.

Nguyen, P. T. A.; Vandamme, M.; Kovalenko*, A. A. "Collapse and Cavitation during Drying of Water-Saturated PDMS Sponges with Closed Porosity". *Soft Matter* **2020**.

Tallon, B.; Kovalenko, A.; Poncelet, O.; Aristégui, C.; Mondain-Monval, O.; Brunet, T. "Experimental Demonstration of Negative Refraction with 3D Locally Resonant Acoustic Metafluids". *Sci. Rep.* **2021**.

A. Kovalenko*, T. Brunet, O. Mondain-Monval. "Mechanical and acoustic properties of macroporous acrylate materials near glass transition". *Polymer*, **2018**.

A. Ba, A. Kovalenko, C. Aristégui, O. Mondain-Monval, T. Brunet. "Soft porous silicone rubbers with ultra-low sound speeds in acoustic metamaterials". *Sci. Rep.* **2017**.

Kovalenko*, A.; Zimny, K.; Mascaro, B.; Brunet, T.; Mondain-Monval, O. "Tailoring of the Porous Structure of Soft Emulsion-Templated Polymer Materials". *Soft Matter* **2016**.