

OLGA STAROSTENKO

Senior Researcher (Assoc. Prof.) • PhD

Scientific area

Synthesis of new polymers and their modification; polymer blends, thermoplastic elastomers, recycling of thermoplastic and elastomer wastes, such as polyolefins and tire rubber. Chemical and physical modification of linear and network polymers. Investigation of kinetics of formation of polymer materials and their structure-properties relationships. Polymer composites and nanocomposites. Porous films, nanoporous polymeric materials and membranes. Influence of different types of irradiation on the structure and properties of polymers and composites. Heat-resistant adhesives, binders, carbon and glass plastics.

Scientific publications

about 235 publications, including 1 book, 2 chapters in books, about 80 articles (including more than 35 in international publications), 20 patents, and about 130 abstracts in international and Ukrainian scientific conferences

Grants and awards

- 2017** Grant Gouvernement Français (de l'Ambassade de France en Ukraine, FR) GRANT_NUMBER: 909717A (2 weeks)
- 2010** Grant of the Association of Supporters of the Leibniz Institute of Polymer Research Dresden, Germany (1 week);
- 2008** Awarded the Medal of the NAS of Ukraine for young scientists "**Talent, Inspiration, Work**".
- 2006** Laureate of the President of Ukraine Prize for Young Scientists for a series of works: "Development of high-quality and environmentally friendly thermoplastic polymer composites, including on the basis of household waste of polyethylenes and rubber"
- 2004** STCU Grant, National Technical University, Department of Physics, Athens, Greece
- 2002-2004** Scholarship holder of the President of Ukraine for young scientists
- 1998-2000** Scholarship holder of the President of the NAS of Ukraine for young scientists

Participation in State (Ukrainian) Programs (principal investigator):

- 2021-2025** Target comprehensive program of scientific research of the NAS of Ukraine "Scientific and technical problems of monitoring the state, evaluation and extension resource of structures, equipment and structures of long-term operation" (Resource-3): "Development of scientific principles and effective technologies for the creation and use of resource-saving modifiers based on polymer waste structured by multilayer carbon nanotubes, as well as waste from - heat and power generating enterprises, takeaway ash, as an additional filler, for improving the performance and resource of cement and asphalt concretes"
- 2016-2020** Target comprehensive program of scientific research of NAS of Ukraine "Reliability and durability of materials, structures, equipment and structures" (Resource-2): "Prolongation of the resource of the road surface by using thermoelastoplastics based on waste polymers of different nature as modifiers of bitumen and asphalt concrete".



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h-index (2023)

13 (Scopus)

13 (Google Scholar)

Citations (2023)

480 (Scopus)

593 (Google Scholar)



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- 2019** Target comprehensive program of scientific research of NAS of Ukraine "New functional substances and materials of chemical production" under the budget program "Support to the development of priority areas of scientific research": "Development of a new heat-resistant nanostructured binding for carbon fibers for aviation purposes on the basis of bisphthalonitrile of domestic production".
- 2013-2015** Target comprehensive program of scientific research of NAS of Ukraine "Problems of resource and safety of operation of structures, structures and machines" (Resource): "Development of effective methods for extending the resource of bridges and building structures by chemical and radiation and- chemical modification of concretes».
- 2010-2014** State Target Scientific and Technical Program "Nanotechnology and nanomaterials" of the NATIONAL Academy of Sciences: "Development of nanotechnology production of hybrid - composite nanomaterials of high heat resistance and adhesion strength and low dielectric losses for aviation elements, missile technology, microelectronics".

Participation in International Scientific Projects:

- 2022-2026:** International Research Project (IRP) "POLYTHERMAT" France (CNRS) – Ukraine (NASU)
- 2017-2021:** International Associated Laboratory (LIA) "POLYNANOPOR" France (CNRS) – Ukraine (NASU)
- 2016-2019:** Horizon 2020 (EU), project "Стратегічна і цільова підтримка співпраці між Європою і Україною в галузі авіаційних досліджень" AERO-UA
- 2014-2015, 2011-2013** (PICS Project No5700), **2006-2007, 2004-2005:** NASU-CNRS joint projects Ukraine-France
- 2011-2013:** NASU-TUBITAK (Ukraine-Turkey) joint project;
- 2003-2006:** STCU Project (Ukraine-Uzbekistan);
- 2001-2003:** INCO-Copernicus Program.

Visiting scientist:

- 2022:** IRP, CNRS (France) Fellowship, Institut de Chimie et des Matériaux Paris-Est, Thiais (3 weeks)
- 2021:** LIA, CNRS (France) Fellowship, Institut de Chimie et des Matériaux Paris-Est, Thiais (3 weeks)
- 2019:** LIA, CNRS (France) Fellowship, Institut de Chimie et des Matériaux Paris-Est, Thiais (2 weeks)
- 2018:** LIA, CNRS (France) Fellowship, Institut de Chimie et des Matériaux Paris-Est, Thiais (2 weeks)
- 2017:** Bourse du gouvernement français, Institut de Chimie et des Matériaux Paris-Est (ICMPE), France (2 weeks)
- 2013:** PICS, CNRS (France) Fellowship, Laboratoire «Etude et Caractérisation des Composés Amorphes et des Polymères», EA 4528 Université de Rouen, INSA Rouen (1 week);
Institut de Chimie et des Matériaux Paris-Est, UMR 7182 CNRS-Université Paris-Est Créteil, Thiais (1 week)
- 2012:** NASU-TUBITAK, Ege University, Faculty of Engineering, Department of Civil Engineering, Transportation Division, Bornova/İzmir, Turkey (1,5 week);
PICS, CNRS (France) Fellowship, Laboratoire «Ingénierie des Matériaux Polymères» (IMP), UMR 5223 CNRS-INSA Lyon-Université de Lyon 1 (1,5 week);
PICS, CNRS (France) Fellowship, Institut de Chimie et des Matériaux Paris-Est, UMR 7182 CNRS-Université Paris-Est Créteil, Thiais (1,5 week)
- 2011:** PICS, CNRS (France) Fellowship, LECAP Laboratory, Rouen University, France (2 weeks).
- 2004:** STCU Fellowship, National Technical University of Athens, Department of Physics, Athens, Greece (2 weeks);
CNRS (France) Fellowship, Department of Polymer Investigations, CNRS–Université Paris XII, Paris, France (3 weeks).
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The most important recent publications

1. **Thermostable nanoporous polycyanurates.** Fainleib A., Grigoryeva O., Starostenko O., Gusakova K., Grande D. Akademperiodyka: Kyiv, 2023.
2. Gusakova K., Grigoryeva O., Starostenko O., Fainleib A., Grande D. **Recent Developments in Generation of Porous Polymer Materials.** In “Advances in progressive thermoplastic and thermosetting polymers, perspectives and applications” (Ye. Mamunya, and M. Iurzhenko, editors), Tehnopress editura: Iasi, Romania, 2012, Chapter 6, p. 219-258.
3. **Effect of maleic anhydride-grafted and gamma-irradiated recycled polypropylene on rheological properties of asphalt binder** / T. Günay, P. Ahmedzade, S. Hassanpour-Kasanagh, A. Fainleib, O. Starostenko // *International Journal of Pavement Engineering* **2022**, 23(13):4819
4. **Thermally stable nanoporous cyanate ester resin / linear polyurethane networks created by nuclear technologies** / Fainleib A., Grigoryeva O., Starostenko O., Gusakova K., Sakhno V., Borzakovskiy A., Kovalinska T., Youssef B., Gouanve F., Espuche E., Grande D. // *Polymer* **2021**, 228:123831
5. **High performance multi-functional Cyanate Ester oligomer-based network and epoxy-POSS-containing nanocomposites: structure, dynamics and properties** / V. Bershtein, A. Fainleib, P. Yakushev, D. Kirilenko, L. Egorova, O. Grigoryeva, V. Ryzhov, O. Starostenko // *Polymer Composites* **2020**, 41(5):1900.
6. **Effect of ionic liquids on kinetic parameters of dicyanate ester polycyclotrimerization and on thermal and viscoelastic properties of resulting cyanate ester resins** / A. Fainleib, O. Grigoryeva, A. Vashchuk, O. Starostenko, S. Rogalsky, A. Rios de Anda, T-T-T. Nguyen, D. Grande // *eXPRESS Polymer Letters* **2019**, 13(5):469.
7. **Application of ionic liquids in thermosetting polymers: epoxy and cyanate ester resins** / Vashchuk A., Fainleib A., Starostenko O., Grande D. // *eXPRESS Polymer Letters* **2018**, 12(10):898.
8. **Structure–Property Relationships in Nanocomposites Based on Cyanate Ester Resins and 1-Heptyl Pyridinium Tetrafluoroborate Ionic Liquid** / Vashchuk A., Rios de Anda A., Starostenko O., Grigoryeva O., Sotta P., Rogalsky S., Smertenko P., Fainleib A., Grande D. // *Polymer*, **2018**, 148C:14
9. **Nanoporous Cyanate Ester Resins: Structure-Gas Transport Property Relationships** / Gusakova K., Fainleib A., Espuche E., Grigoryeva O., Starostenko O., Gouanve F., Boiteux G., Saiter J.-M., Grande D. // *Nanoscale and Research Letters*, **2017**, 12:305.
10. **Nanoporous polymer films of cyanate ester resins designed by using ionic liquids as porogens** / A. Fainleib, A. Vashchuk, O. Starostenko, O. Grigoryeva, S. Rogalsky, T.-T.-T. Nguyen, D. Grande // *Nanoscale and Research Letters*, **2017**, 12:126.
11. **Acceleration effect of ionic liquids on polycyclotrimerization of dicyanate esters** / A. Fainleib, O. Grigoryeva, O. Starostenko, A. Vashchuk, S. Rogalsky, D. Grande // *eXPRESS Polym. Let.*, **2016**, 10(9), 722–729.
12. **Thermostable cyanate ester resins and POSS-containing nanocomposites: influence of matrix chemical structure on their properties** / A. Fainleib, P. Yakushev, L. Egorova, O. Grigoryeva, V. Ryzhov, O. Starostenko // *Polymers for Advanced Technologies*, **2016**, 27(3), 339-349.
13. **The impact of ultra-low amounts of introduced reactive POSS nanoparticles on structure, dynamics and properties of thermostable polycyanurates** / V. Bershtein, A. Fainleib, L. Egorova, O. Grigoryeva, D. Kirilenko, S. Konnikov, V. Ryzhov, O. Starostenko, P. Yakushev, M. Yagovkina // *European Polymer Journal*, **2015**, 67, 128-142.
14. **Annealing behavior and thermal stability of nanoporous polymer films based on high-performance cyanate ester resins** / K. Gusakova, J.-M. Saiter, O. Grigoryeva, F. Gouanve, A. Fainleib, O. Starostenko, D. Grande // *Polymer Degradation and Stability*, **2015**, 120, 402-409.
15. **Synthesis, morphology, and thermal stability of nanoporous cyanate ester resins obtained upon controlled monomer conversion** / A. Fainleib, K. Gusakova, O. Grigoryeva, O. Starostenko, D. Grande // *European Polymer Journal*, **2015**, 73, 94-104.
16. **Nanoporous polycyanurates created by chemically induced phase separation: structure-property relationship** / O. Grigoryeva, A. Fainleib, K. Gusakova, O. Starostenko, J.-M. Saiter, V. Levchenko, A. Serghei, G. Boiteux, D. Grande // *Macromolecular Symposia*, **2014**, 341, 57-66.