M.Sc. Uliana Kostiv

E-mail: kostiv@imc.cas.cz,

Mobile: +420 775 206 893

Personal information	Born: November 19, 1988, at Morshyn, Ukraine Citizenship: Ukrainian
Education	
2006 – 2010	Institute of Chemistry and Chemical Technology, Lviv Polytechnic National University, the Bachelor degree in chemical technology and engineering.
2010 – 2011	Institute of Chemistry and Chemical Technology, Lviv Polytechnic National University, the Master of Science degree in chemical technology of polymers.
2012 – 2013	UNESCO/IUPAC Postgraduate Course in Polymer Science in the Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic. Synthesis and characterization of upconversion nanoparticles under supervision of Dr. Daniel Horák.
2013 – till now	Ph.D. student at the Charles University in Prague and Institute of Macromolecular Chemistry CAS; thesis on design and characterization of advanced polymer-coated upconversion nanoparticles under supervision of Dr. Daniel Horák.
Skills	Synthesis and characterization of upconversion and magnetic nanoparticles, their modification by organic and inorganic polymers, conjugation with peptides, suitable for biomedical applications. Proficiency in transmission electron and confocal microscopy, dynamic light scattering, infrared spectroscopy, thermogravimetric analysis, cell viability tests, etc.
Languages	Ukrainian English (fluent) Russian (fluent) Czech (fluent)

Awards

Best poster award at the 2nd Conference and Spring School on Properties, Design and Applications of Upconversion Nanomaterials, Valencia, Spain, 2018.

Participation in the internship program

1. COST Short Term Scientific Missions CM1403–38901 "Upconversion nanoparticles functionalized with photoactive material: Design, synthesis and characterization", in January – March 2018. Internship was held at the Photochemical Reactivity Group headed by prof. Julia Pérez Prieto, the Institute of Molecular Science of the University of Valencia, Spain.

Participation in the national and international trainings

1. COST Training School on "Upconverting nanoparticles in bioaffinity assays - from bioconjugation to luminescence readout", April 3 – 5, 2017, in Turku, Finland

2. The 133rd BASF International Summer Course, August 20 – 26, 2017 in Ludwigshafen, Germany.

Participation in the national and international projects

1. The Grant Agency of the Czech Republic, № 15-01897S (2015–2017)

"Magnetic or ^{90}Y-radiolabeled light-upconverting nanoparticles for photodynamic therapy or radiotherapy of tumors"

2. Czech-Polish project № 7AMB16PL080 (2016–2017)

"Surface engineering of fluorides nanocrystals and quantum dots with use of modified polymeric and silica shells"

3. COST Action CM1403 (2014–2018)

"The European upconversion network - from the design of photon-upconverting nanomaterials to biomedical applications"

Papers

1. **Kostiv U.**, Janoušková O., Šlouf M., Kotov N., Engstová H., Smolková K., Ježek P., Horák D., Silica-modified monodisperse hexagonal lanthanide nanocrystals: Synthesis and biological properties, ***Nanoscale*** 7, 18096–18104 (2015).

2. Morales-Narváez E., Golmohammadi H., Naghdi T., Yousefi H., **Kostiv U.**, Horák D., Pourreza N., Merkoçi A., Nanopaper as an optical sensing platform, ***ACS Nano*** 9, 7296–7305 (2015).

3. **Kostiv U.**, Šlouf M., Macková H., Zhigunov A., Engstová H., Smolková K., Ježek P., Horák D., Silica-coated upconversion lanthanide nanoparticles: The effect of crystal design on morphology, structure and optical properties, ***Beilstein J. Nanotechnol.*** 6, 2290–2299 (2015).

4. **Kostiv U.**, Kotelnikov I., Proks V., Šlouf M., Kučka J., Engstová H., Ježek P., Horák D., RGDS- and TAT-conjugated upconversion $NaYF_4:Yb^{3+}/Er^{3+}\&SiO_2$ nanoparticles: *In vitro* human epithelioid cervix carcinoma cellular uptake, imaging and targeting, ***ACS Appl. Mater. Interfaces*** 8, 20422–20431 (2016).

5. **Kostiv U.**, Patsula V., Šlouf M., Pongrac I., Škokić S., Dobrivojević Radmilović M., Pavičić I., Vinković Vrček I., Gajović S., Horák D., Physico-chemical characteristics, biocompatibility, and MRI applicability of novel monodisperse PEG-modified magnetic $Fe_3O_4\&SiO_2$ core-shell nanoparticles, ***RSC Adv.*** 7, 8786–8797 (2017).

6. **Kostiv U.**, Lobaz V., Kučka J., Švec P., Sedláček O., Hrubý M., Janoušková O., Francová P., Kolářová V., Šefc L., Horák D., Simple neridronate-based surface coating strategy for upconversion nanoparticles: Highly colloidally stable ^{125}I-radiolabeled $NaYF_4:Yb^{3+}/Er^{3+}$@PEG nanoparticles for multimodal *in vivo* tissue imaging, ***Nanoscale*** 9, 16680–16688 (2017).

7. **Kostiv U.**, Rajsiglová L., Luptáková D., Pluháček T., Vannucci L., Havlíček V., Engstová H., Jirák D., Šlouf M., Horák D., Biodistribution of upconversion/magnetic silica-coated $NaGdF_4:Yb^{3+}/Er^{3+}$ nanoparticles in mouse models, ***RSC Adv.*** 7, 45997–46006 (2017).

8. **Kostiv U.**, Patsula V., Noculak A., Podhorodecki A., Větvičkac D., Poučkovác P., Sedláková Z., Horák D., Phthalocyanine-conjugated upconversion $NaYF_4:Yb^{3+}/Er^{3+}@SiO_2$ nanospheres for NIR-triggered photodynamic therapy in a tumor mouse model, ***ChemMedChem.*** 12, 2066–2073 (2017).

9. Patsula V., Borisova T., **Kostiv U.**, Galkin M., Pastukhov A., Horák D., Effect of $Fe_3O_4@SiO_2$ nanoparticles on glutamate transport in the brain nerve terminals and its regulation by particle size, ***J. Mater. Sci. Eng. C***, submitted.

10. Podhorodecki A., Krajnik B., Golacki L., **Kostiv U.**, Pawlik G., Kaczmarek M., Horak D., Percolation limited emission intensity from upconverting $NaYF_4:Yb^{3+}$, Er^{3+} nanocrystals – a single nanocrystal optical study, ***Nanoscale,*** submitted.

Selected conference presentations

1. **Kostiv U.**, Horák D., Šlouf M., Surface modification of upconverting lanthanide nanoparticles by silica, Career in Polymers VI, Prague, Czech Republic, 2014, Book of Abstracts, P. 2.

2. **Kostiv U.**, Horák D., Šlouf M., Upconverting nanoparticles for biomedical applications, Frontiers of Polymer Colloids: from Synthesis to Macro-Scale and Nano-Scale Applications, Prague, Czech Republic, 2014, Book of Abstracts, p. 153.

3. **Kostiv U.**, Horák, D., Surface-modified upconversion lanthanide nanoparticles: Design and properties, Career in Polymers VII, Prague, Czech Republic, 2015, Book of Abstracts, P. 1.

4. **Kostiv U.**, Kotelnikov I., Proks V., Janoušková O., Horák D., Cellular uptake of TAT- and RGD-conjugated upconversion lanthanide nanoparticles, Functional Polymers at Bio-Material Interfaces, Prague, Czech Republic, 2015, Book of Abstracts, p. 74.

5. **Kostiv U.**, Horák D., Upconversion lanthanide nanoparticles: Design, properties and surface modifications, Stem Cell and Biomaterial Applications for Brain Repair, Zagreb, Croatia, 2015, Book of Abstracts, p. 83-84.

6. **Kostiv U.**, Kotelnikov I., Proks V., Janoušková O., Horák D., Cellular uptake of upconversion lanthanide nanoparticles conjugated with TAT- and RGD-peptides, Frontiers in Material and Life Sciences: Creating Life in 3D, Brno, Czech Republic, 2015, Book of Abstracts, p. 95.

7. **Kostiv U.**, Kotelnikov I., Proks V., Janoušková O., Horák D., RGD- and TAT-conjugated $NaYF_4:Yb^{3+}/Er^{3+}@SiO_2$ nanoparticles: Preparation and biological properties, 1st Conference on Properties, Design and Applications of Upconverting Nanomaterials, Wroclaw, Poland, 2016, Book of Abstracts, p. 90.

8. **Kostiv U.**, Lobaz V., Kučka J., Hrubý M., Proks V., Šlouf M., Horák D., ^{125}I-labeled upconversion nanoparticles for multimodal *in vivo* imaging, Polymers and Organic Materials for Electronics and Photonics: Science and Applications, Prague, Czech Republic, 2017, Book of Abstracts, p. 136.

9. **Kostiv, U.**, Lobaz, V., Kučka, J., Hrubý, M., Proks, V., Šlouf, M., Horák, D., Colloidally stable ^{125}I-labeled upconversion nanoparticles for multimodal *in vitro* and *in vivo* tissue imaging, 2nd Conference and Spring School on Properties, Design and Applications of Upconversion Nanomaterials, Valencia, Spain, 2018, Book of Abstracts, p. 100.

10. **Kostiv U.**, Podhorodecki A., Vannucci L., Horák D., Polymer-coated upconversion and magnetic nanoparticles for biomedical applications, Bridges in Life Sciences, RECOOP 13th Annual Scientific Conference, Zagreb, Croatia, 2018, Book of Abstracts, p. 43.