

Assistant Professor Denitsa Elenkova

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**Education**

2015 – Ph.D. in Chemical science 4.2. Chemical science (Inorganic Chemistry)

2010 – Master in Environmental Chemistry, Sofia University "St. Kliment Ohridski, Faculty of Chemistry and Pharmacy

2008 – Bachelor in Chemistry, Profile: Analytical Chemistry, Sofia University "St. Kliment Ohridski, Faculty of Chemistry and Pharmacy

Professional Development

2015 –Assistant Professor, Department Inorganic Chemistry, Sofia University "St. Kliment Ohridski, Faculty of Chemistry and Pharmacy

2013 – Teaching Assistant, Department Inorganic Chemistry, Sofia University "St. Kliment Ohridski, Faculty of Chemistry and Pharmacy

Internships

- In Saarland University, Saarbrücken, Germany

2 month internship June 2011-August 2011 in the group of Coordination Chemistry, Research director: Associate Professor Kaspar Hegetschweiler, Ph.D. Advisor: Bernd Morgenshtern, Ph.D

- In Molecular Biophysics, CNRS – Orleans, France

2 month internship June 2012-August 2012 in the group Luminescent lanthanide compounds, optical spectroscopy and bioimaging, Research director: Associate Professor Stephane Petoud, Ph.D, Advisor: Svetlana Eliseeva, Ph.D

Scientific interests

Member of the Laboratory of Rare Earth Chemistry

Synthesis and investigation of optical properties of coordination compounds with lanthanoid elements.

Selected publications (up to 5)

- Boris Borrisov, Martin Tsvetkov, Tsvetan Zahariev, Denitsa Elenkova, Bernd Morgenstern, Deyan Dimov, Rositsa Kukeva, Natasha Trendafilova, Ivelina Georgieva, **Effect of Pyrrolidinedithiocarbamate Ligand on the Luminescence Properties of Heteroligand Samarium and Europium Complexes: Experimental and Theoretical Study**, *Inorganic Chemistry*, 2024, <https://doi.org/10.1021/acs.inorgchem.4c00134>
- Martin Tsvetkov, Denitsa Elenkova, Mihail Kolarski, Rumen Lyapchev, Bernd Morgenstern, Vladimira Videva, Joana Zaharieva, Maria Milanova, **Synthesis, crystal structure and luminescence properties of two novel Tb(III) complexes with 1,10-phenanthroline derivatives as ligands**, *Journal of Molecular Structure*, 2024, doi:10.1016/j.molstruc.2024.138768
- D Elenkova, D Gagashev, E Encheva, M Tsvetkov, **Effect of different lanthanide ions on the catalytic activation of peroxymonosulfate with lanthanide metal-organic frameworks (Ln-MOFs) with terephthalic acid**, *IOP Conference Series: Earth and Environmental Science*, 2024, doi:10.1088/1755-1315/1305/1/012013
- J. Romanova, R. Lyapchev, M. Kolarski, M. Tsvetkov, **D. Elenkova**, B. Morgenstern, J. Zaharieva, **Molecular Design of Luminescent Complexes of Eu(III): What Can We Learn from the Ligands**, *Molecules*, vol:28, issue:10, 2023, pages:4113-0, doi:10.3390/molecules28104113,
- **Denitsa Elenkova**, Rumen Lyapchev, Julia Romanova, Bernd Morgenstern, Yana Dimitrova, Deyan Dimov, Martin Tsvetkov, Joana Zaharieva, **Luminescent Complexes of Europium (III) with 2-(Phenylethynyl)-1,10-phenanthroline: The Role of the Counterions**, *Molecules*, vol:26, issue:23, 2021, pages:7272-0, doi:<https://doi.org/10.3390/molecules26237272>

Project activity – (research projects in the last 5 years)

- “New nanocomposite materials based on mixed metal oxides of d- and f-elements as purification catalysts in Fenton-like reactions” Project 70-123-486, NextGenerationEU, Member of the research team; 2023-2025

- “High Selective Luminescent Sensors Based on Stable Lanthanide Metal-Organic Frameworks (Ln-MOFs) for Detection of Water Pollutants”, Project KP-06-N69/6, National Fund of Science, Coordinator of the research; team: 2022-2025
- “Synthesis and investigation of sensing properties of lanthanoid metal-organic frameworks (Ln-MOFs)” Project 80-10-7 , MES, National Fund of Science, Coordinator of the research; team: 2022
- “Molecular design of photoactive metal-containing systems with promising applications” Project KP-06-N59/6, National Fund of Science, Member of the research team; 2021-2024
- “Antenna effects in coordination of lanthanide ions to photoactive molecules quinoline and imidazoquinoline derivatives as bi- and tridentate” Project KP-06-N39/6, National Fund of Science, Member of the research team; 2021-2024
- “Fluorescent complexes of lanthanoid ions with phenanthroline derivatives as ligands - synthesis and characterization” Project 80-10-50, MES, National Fund of Science, Coordinator of the research; team: 2021
- “Trapping of N-Heterocyclic Carbenes with Boron Derivatives” Project 80-10-149, MES, National Fund of Science, Member of the research team , 2021
- “Physicochemical characteristics of new crystal structures of molybdates of the type $\text{Ln}_2(\text{MoO}_4)_3$ (Ln = La, Gd, Lu), determined by the modification with Sm, Tb and Dy” Project KP-06-M39/3, National Fund of Science, Coordinator of the research; team: 2020-2022
- “Synthesis and characterization of new materials for white LEDs based on $\text{Gd}_2(\text{MoO}_4)_3$ modified with lanthanide ions” Project 80-10-153 , MES, National Fund of Science, Member of the research team , 2019
- “Clean technologies for a sustainable environment - water, waste, energy for a circular economy”, Project: BG05M2OP001-1.002-0019, financed by the Operational Program "Science and Education for Smart Growth, Member of the research team; 2018-2023

Teaching activity

Practical classes:

Seminars and exercises in "**General and inorganic chemistry**" and "**Chemistry of elements**" - all specialties of Faculty of Chemistry and Pharmacy, Faculty of Biology

Lectures and practical classes:

"**Properties and modern applications of rare earth elements**" - optional undergraduate course

"**Materials based on rare earth elements**" - optional master's course for the master's program Inorganic and hybrid materials for modern technologies.

