Mariya received her M.Sc. degree in Chemistry from **M.V. Lomonosov Moscow State University in 2006**. Her M.Sc. project on designing porous characteristics of zeolite catalysts was completed in the Laboratory of kinetics and catalysis headed by Prof. I.I. Ivanova.

She obtained her Ph.D. in Physical chemistry from **L.V. Pisarzhevskii Institute of Physical Chemistry (National Academy of Sciences of Ukraine) in 2013** focusing on tailoring active sites in extra-large pore zeolites. Mariya spent one year as post-doctoral fellow in the **group of Prof. J. Čejka at J. Heyrovsky Institute of Physical Chemistry in Prague**, studying structure-activity relationships of MOFs and layered zeolite catalysts in liquid phase reactions.

In 2014–2016 she continued her research work at J. Heyrovsky Institute leading her own project granted by the Czech Science Foundation.

While working on her Ph.D. project, Mariya detected hydrolytic instability of germanosilicate zeolites, firstly considered as their disadvantage, but later on realized to be controllable and opening new opportunities for materials design. This finding has impacted the development of ADOR strategy for zeolites synthesis, which overturned conventional thinking about zeolite formation and led to the preparation of 15 new zeolites including "unfeasible" ones. In 2017 Mariya (together with Prof. J. Čejka, Dr. P. Eliášová, Dr. J. Prech, Dr. M. Mazur, Dr. M. Opanasenko) have been **awarded with Werner von Siemens Award** (https://new.siemens.com/cz/cs/spolecnost/o-nas/cena-siemens.html) for the contribution to the development of ADOR chemistry.

Currently, Mariya holds a position of Assistant Professor at **Charles University** (Prague, Czech Republic). As a member of CUCAM, she is leading an **independent research group and team**. Her research is focused on designing zeolites with uncharacteristic architectures, and compositions to advance of materials properties and on in-depth characterization of heterogeneous catalysts using *in situ* and *operando* FTIR spectroscopy.

She has published **58 research papers** (including those in J. Am. Chem. Soc, Angew. Chem., Nature Com., Apl. Catal. B and Chem. Soc. Rev., which is among **the top 1% papers "highly cited in the field of Chemistry"**), 14 as the **first author**, 16 as the **corresponding/senior author**. Her works have been cited > 1000 times without self-citations (h-index = 19, according to WOS 3/10/2021).

- **EDUCATION**

2013 **Ph.D. in physical chemistry** (Supervisor: O. Shvets, Ph.D.)
Department of Porous Substances and Materials, L.V. Pisarzhevsky Institute of Physical Chemistry, National Academy of Sciences of Ukraine /Ukraine

2006 **Master in chemistry** (with honours, Supervisor: E. Knyazeva, Ph.D.)
Chemistry Department, M.V. Lomonosov Moscow State University / Russian Federation

CURRENT POSITION

2019 – **Assistant Professor**
Department of Physical and Macromolecular chemistry, Faculty of Science, Charles University / Czechia

- **PREVIOUS POSITIONS**

2017 – 2019 **Assistant Professor** (**0.5**)
Department of Physical and Macromolecular chemistry, Faculty of Science, Charles University / Czechia

In 2017 I was invited to join the nascent Charles University Centre of Advanced Materials (CUCAM) aimed at "developing the science and the human capital at Charles University" (http://cucam.cuni.cz/) and accepted a part-time position of Assistant Professor at Charles University. At that time, my workload at J. Heyrovsky Institute of Physical Chemistry decreased to 0.5 and I took this occasion ***to try myself in the role of student supervisor and lecturer****. In 2019, after finishing the project I was working on, I retired from J. Heyrovsky Institute of Physical Chemistry and took a full-time position as Assistant Professor at Charles University.*

2017 – 2019 **Research assistant** (**0.5**)
Department of Synthesis and Catalysis, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic / Czechia

2014 – 2017 **Research assistant**
Department of Synthesis and Catalysis, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic / Czechia

2013 – 2014 **Postdoctoral researcher** (the group of Prof. J. Čejka)
Department of Synthesis and Catalysis, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic / Czechia

- **FELLOWSHIPS AND AWARDS**

2021 – **Learned Society of the Czech Republic Young Scientist Award** (https://www.learned.cz/cz/oceneni/nositele-cen-ucene-spolecnosti/nositele-cen-za-rok-2021.html) for significant scientific contribution to the design of zeolitic materials (**awarded annually to 1-2 junior scientists)**

2020 – **Dean's Award** (https://www.natur.cuni.cz/fakulta/aktuality/dekan-fakulty-prof-jiri-zima-ocenil-nejlepsi-absolventy-a-mlade-vedecke-pracovniky-za-rok-2020) for

young academic for remarkable contribution to research and pedagogical activity at Charles University, Faculty of Science (**awarded annually to the best young academic** of the Faculty of Science at Charles University)

2017 – **Werner von Siemens Award** (https://www.universitas.cz/aktuality/310-siemens-ocenil-inovace-diplomove-prace-zeny-ve-vede-i-prekonavani-prekazek) for the contribution to the development of ADOR chemistry (together with Prof. J. Čejka, Dr. P. Eliášová, Dr. J. Prech, Dr. M. Mazur, Dr. M. Opanasenko)

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

2014 – 2015 Visiting associate Francisca S. de O. Ramos (University of Campinas / Brazil).
Under my supervision, Francisca has studied the performance of different catalysts in liquid-phase reactions to explore potential of zeolites for fine chemicals synthesis. As a result, **two joint articles** have been published in *Catal. Tod. 2015, IF = 5.8* and *Catal. Sci. Tech. 2015, IF = 5.7*.

2015 – 2016 Visiting associate Jeong-Chul Kim (Institute for Basic Science / Republic of Korea).
Under my supervision Jeong-Chul has mastered *in situ* FTIR spectroscopy to probe a surface chemistry of nanosponge hierarchical zeolites. The results have been published as a **joint article** in *ACS Catal. 2015, IF = 12.3.*

2017 – 2018 M.Sc. student Milada Teubnerová (University of Chemistry and Technology / Czechia).
Project "*Infrared spectroscopy in analysis of isomorphously substituted zeolites*".
After her successful defense and graduation, Milada started her PhD in the **group of Professor Kleist** (http://www.nanocat.rub.de/mitarbeiter/teubnerova/index.html.de) at **Ruhr-Universität Bochum**.

2017 – 2018 Postdoctoral fellow Dr. Shashikant A. Kadam (J. Heyrovsky Institute of Physical Chemistry). Coming for postdoctoral stay, Shashikant was tasked to develop FTIR *operando* spectroscopy approach for establishing structure–activity relationships for catalysts designed in the group. Our 1-year collaboration, which started from the construction of *operando* set-up itself, has produced three high-profile publications in *Catal. Tod. 2018, IF = 5.8; J. Phys. Chem. C 2018, IF = 4.1* and *ACS Catal. 2019, IF = 12.3*.
After completing his postdoctoral stay in the Czech Republic, Shashikant started a new position in the **group of Prof. Iglesia** in the College of Chemistry, **University of California at Berkeley** (http://orcid.org/0000-0002-4298-4074).

2017 – 2021 Ph.D. student Jin Zhang (Charles University / Czechia).
Project "*IR operando study of Alcohols-To-Hydrocarbons conversion over zeolites".*
In 2019, the Grant Agency of Charles University has granted Jin with the **3-year student project** (total budget 32 000 EUR). In 2021, Jin successfully defended her thesis and was awarded with Ph.D. degree.

2019 –2021 B.Sc. student Sidónia Molitorisová (Charles University / Czechia).

Project *"Stabilization of metal nanoparticles in MWW zeolite for catalytic applications".*
Under my supervision Sidónia has mastered the synthesis of metal-supported zeolite catalysts and their characterization using diffraction and spectroscopic techniques. The results of her work contributed to the **recent publication** in *ACS Appl. Mater. Interfaces 2021, IF = 8.7.* In 2021, Sidónia successfully defended her thesis and was awarded with B.Sc. degree.

2020 – M.Sc. student Petr Golis (Charles University / Czechia).
Project *"IR spectroscopic study of active centers in nanolayered zeolite catalysts".*

2021 – B.Sc. student Ivana Dobiášová (Charles University / Czechia).
Project *"Variable temperature infrared spectroscopy in analysis of zeolite catalysts".*

2021 – B.Sc. student Arina Islamova (Charles University / Czechia).
Project *"Lewis acid zeolite catalysts for processing of platform chemicals".*

- **TEACHING ACTIVITIES**

2021 – **Lecturer** – Course for B.Sc. and M.Sc. students *"Catalysis in Practice"*, Charles University / Faculty of Science / Czechia

2019 – **Lecturer** – Course for Ph.D. students *"Physical chemistry for international students"*, Charles University / Faculty of Science/ Czechia

2014 – **Lecturer** – Course for Ph.D. students *"Zeolites and molecular sieves"*, Charles University / Faculty of Science / Czechia

- **INSTITUTIONAL RESPONSIBILITIES**

2021 – **Member of a Committee for bachelor and master state exams**
Charles University / Faculty of Science / Czechia

- **COMMISIONS OF TRUST**

2014 – Reviewer of articles in journals where published as a main author (https://publons.com/researcher/2966492/mariya-shamzhy/peer-review/)

- **MAJOR COLLABORATIONS**

Prof. Wiesław Roth, Jagiellonian University in Kraków / Poland. **Layered zeolites** (*J. Amer. Chem. Soc. 2011, IF = 14.6*; *Chem. Soc. Rev. 2015, IF = 40.4; ACS Catal. 2021, IF = 12.3*).

Prof. Russell E. Morris, School of Chemistry / St. Andrews University / UK. **ADOR chemistry** (*Angew. Chem. Int. Ed. 2017, IF = 12.9; Chem. Sci. 2016, IF = 9.3; Nat. Com., 2019, IF = 12.1).*

Prof. David Serrano, IMDEA Energia / Spain. The collaboration was established in the frames of the FP7 project "CASCATBEL" (http://www.cascatbel.eu/) aimed to design, optimise and scale-up a cost-efficient **novel catalytic process for the production of second-generation liquid biofuels from biomass** (*Catal. Sci. Tech. 2019, IF = 5.7; Catal. Tod. 2020, IF=5.8; Appl. Catal. B 2021, IF = 16.6.)*