

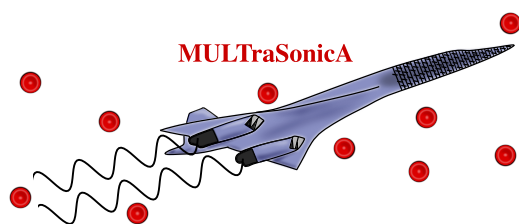


This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme under Grant agreement n° 885155

## 2 ERC-funded Ph.D. Positions in Multiscale Modeling and Simulation

Applications are invited for 2 Ph.D. student positions at the Laboratory for Molecular Modeling, National Institute of Chemistry, Ljubljana, Slovenia. The positions are part of an ERC-2019-ADG Grant "MULTraSonicA: Multiscale modeling and simulation approaches for biomedical ultrasonic applications" led by prof. Matej Praprotnik.

### Job description



We aim to design a virtual research environment to assist medical applications of ultrasound-guided drug and gene delivery and imaging. The project focus are the encapsulated microbubbles and gas vesicles with submicron size that are used as ultrasound contrast agents and can also act as drug carriers. The successful candidates will develop new, data-informed mesoscopic models of

ultrasound contrast agents to accurately model their rheological and acoustic behavior that critically affects the technology of ultrasound-guided drug and gene delivery. Interactions of ultrasound and agents at a submicron level will be included by harnessing high-performance computing (HPC) and employing novel multiscale methods that enable seamless propagation of ultrasound from the macro to microscopic level. The proposed framework will be integrated with experimental efforts to advance ultrasound-guided drug and gene delivery across biomedical applications.

### Required qualifications

We are looking for enthusiastic candidates with:

- M.Sc. in physics, chemistry, applied mathematics, or related fields,
- basic knowledge of statistical physics, biophysics,
- programming skills (C++, Python,...),
- proficiency in spoken and written English.

### Funding

The positions are available for four years. The expected starting date is October 2023, although there is some flexibility to start slightly earlier or later. We offer competitive salaries provided by the ERC Advanced Grant. Additional funding is available for scientific equipment and conference travel expenses.

### Research environment

The successful applicants will have access to top supercomputing facilities. They will benefit from the vivid and rich scientific environment both at the National Institute of Chemistry as well as the University of Ljubljana from which they will receive the Ph.D. degree upon successful completion of their study. They will also strongly interact with the members of the group at the Universitat de Barcelona Institute of Complex Systems (UBICS) where the other part of MULTraSonicA is carried out. Our group offers a collaborative, supportive, and inclusive work environment with many opportunities for professional development. The group is committed to provide equal opportunities and advance the representation of women in science. We welcome applications from all candidates irrespective of gender. Appointments will be based on merit alone.

### More info

<https://www.cmm.ki.si/~praprot/>



NATIONAL INSTITUTE  
OF CHEMISTRY

### How to apply?

To apply, please send a cover letter indicating interest and future career goals, cv, and contact information of two references to [praprot@cmm.ki.si](mailto:praprot@cmm.ki.si).