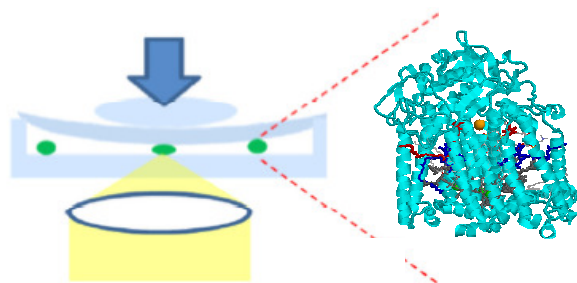


**Graduate student position will be available, starting in the Fall 2023 / Winter 2024,
in the group of Professor Valter Zazubovits**

Department of Physics, Concordia University, Montreal, Canada.



Left: CLIC setup. **Right:** reaction center of purple photosynthetic bacteria.

We are mostly an experimental biophysics group and our research is focused on pigment-protein complexes involved in photosynthesis; we are employing optical methods and electrochemistry. In addition to doing research on photosynthesis per se (energy transfer, charge transfer), we are utilizing proteins from the photosynthesis context in the studies of low-temperature protein dynamics, small light-induced conformational changes, and biosensors for explosives. We are also interested in other natural and artificial pigment arrays resembling photosynthetic light-harvesting antennae.

Variable thickness microfluidic devices and biosensors. Several families of herbicides function by inhibiting primary electron transfer processes in pigment-protein complexes involved in photosynthesis. Many nitric explosives have chemical structures similar to these herbicides and act as strong electron acceptors. Thus, photosynthetic reaction centers could be used in biosensors for explosives and herbicides. We are developing a platform for simultaneous electrochemical (photo-current) and optical / spectroscopic detection that is inspired by Convex Lens-Induced Confinement (CLIC) microscopy. CLIC cell will incorporate transparent electrodes and could be treated as variable-thickness microfluidic device, with reduced thickness ensuring faster diffusion of electron mediators. Experience with chemistry and particularly electrochemistry will be a plus.

Concordia Department of Physics is a growing department in a university with rapidly increasing rating. We offer research-based M.Sc. and Ph.D. programs. Our faculty members conduct research in the areas of Condensed Matter Physics (theoretical and experimental), Molecular Biophysics, Medical Physics / Imaging, Photonics, Theoretical High Energy Physics, Computational Physics and Physics Education.

Successful applicants will be offered financial packages consisting of RA, TA and various awards of at least 20,000 CAD per year (often more), for 4 years (Ph.D.) or 2 years (M.Sc.). International students will be offered tuition remissions or other awards to compensate for the international tuition fees. Please contact Professor Valter Zazubovits; valter.zazubovits@concordia.ca for more information.