

Open Ph.D. projects

1.

Announcer: Petar Lambrev Haralampiev

Doctoral School:

Title of the research topic: Reconstituted membrane models of photosynthetic light-harvesting

Description of the research topic: Photosynthetic organisms have elaborated mechanisms for regulating light harvesting at the molecular level, balancing between maximizing the efficiency of energy capture and avoiding potentially harmful excess irradiation. This project aims to investigate the effects of the molecular surrounding and intermolecular interactions on the photophysical properties of photosynthetic light-harvesting protein complexes in reconstituted membrane models. Photosynthetic complexes will be isolated from plant leaves and inserted into vesicles of plant thylakoid lipids. The effects of different factors that are known to play role in the regulation of light harvesting in vivo – pH, carotenoids and other excitation quenchers – will be tested in these model membrane models by biophysical methods, such as time-resolved fluorescence spectroscopy.

2.

Announcer: Dr. László Szilák, Dr. Bettina Ughy

Doctoral School: University of Szeged, Faculty of Science and Informatics, Doctoral School of Biology

Title of the research topic: Studying bioactive peptides

Description of the research topic: The peptides comprise couple of decades of amino acids. They have very important roles in the living organisms. Practically they can determine every period of the life. We study mostly artificial peptides and investigate how they can influence the biochemical pathways of interest through the protein – protein interaction. The usage of peptides is not restricted to eukaryotes (animals, plants, fungi) but prokaryotes are examined intensively. We focus on the uptake and transport of peptides. Our student will meet the state-of-the-art techniques such as mass-spectrometry based proteomics, however they learn the classical methods e.g. PCR, immuno-staying, standard DNA manipulation etc.