

CEIPEX BUT TOPIC 9

Položka / Field	Obsah / Content
CEIPEX RESEARCH TOPIC LEVEL 1	Advanced Nano & Micro technologies
CEIPEX RESEARCH TOPIC LEVEL 2	Experimental biophotonics
NAME OF THE RESEARCH GROUP	Experimental biophotonics (RG-1-03)
SUPERVISOR	Dr. Daniel Zicha
PROPOSED RESEARCH TOPIC TITLE	Advanced software for batch processing of correlative imaging with quantitative phase and fluorescence
RESEARCH TOPIC DESCRIPTION	Design and develop software for batch processing of correlative imaging, dealing with responses of live tissue culture cells, where quantitative phase and fluorescence micrographs are stored in directories corresponding to individual experiments, which include time-lapse, multi-field, and multi-channel sequences. The software should perform relevant pipelines of image-processing steps on individual time-lapse sequences, appreciating the natural hierarchy of the experimental design and feeding the cell-relevant segmentation results into data analysis based on analysis of variance. The project should allow flexibility in the experimental design hierarchy and utilize the extensive experience and development in the field achieved by our research group. The software should be multi-platform, including Windows and Unix, and utilize Mathematica, C, and potentially Python.
KEYWORDS	Image processing, data analysis, software development
WEBPAGE OF THE RESEARCH GROUP	https://www.ceitec.eu/experimental-biophotonics/rg3