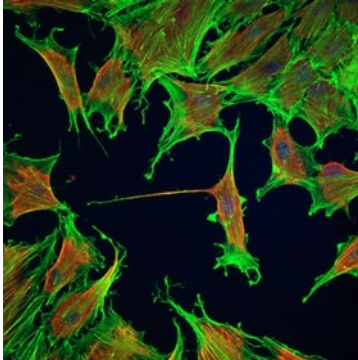


Scientific supervisor	
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Department	Molecular and Interfacial Biophysics
Laboratory	Mechanobiology
Group webpage	http://www.biophysics.fais.uj.edu.pl/
Proposed research topic	
<p>The role of the cytoskeleton in mechanotransduction cellular processes.</p> <p><i>The role of the cytoskeleton in cellular mechanotransduction.</i></p>	
Short description (< 1000 characters)	
<p>Mechanical parameters of cellular microenvironment influence many fundamental biological phenomena such as embryonal development or wound healing. One of the main tasks of mechanobiology is to study the cellular mechanotransduction that is molecular processes which convert mechanical environmental stimuli into intracellular biochemical signals. Results of recent studies indicate, that cytoskeleton plays an important role in this process. In the course of the fellowship, student will participate in experiments which visualize the architecture of main cytoskeletal components – actin, microtubules and intermediate filaments – in cells grown on substrates of different elasticities. Student will have an opportunity to become acquainted with advanced methods of optical microscopy such as confocal microscopy, widefield fluorescence microscopy and mammal cell culture methods. Because of the wide subject matter, more students can participate in this research.</p>	
	
<p>Fig.1. Cytoskeleton of migrating MEF 3T3 cell in model wound healing assay. Actin – green color, Vimentin – red color, Nucleus –blue color.</p>	
Main research tool	
Advanced widefield and confocal microscopy, cell culture, biosensors, microinjection.	
Additional requirements to the candidate	
-interest in biophysics.	
Possibility to continue student internship in the form of:	
Diploma thesis (master's or bachelor's degree)	X
PhD study	X