

Scientific supervisor	
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Department	Department of Photonics
Laboratory	C-1-16
Group webpage	
Proposed research topic	
<i>Laser-induced plasma as a source of white light for absorption measurements with nanosecond resolution</i>	
<p>The aim of the research would be to generate, using nanosecond pulses of the Nd:YAG laser in a gaseous medium (argon, nitrogen or air), a plasma constituting a source of strong continuum radiation in the near-UV and visible range, and to study its spectral-time properties. This light, with a duration of a dozen nanoseconds, would then be used in the absorption spectroscopy of various types of transient media, including the study of the spectral line profiles of atoms and ions "immersed" in these media and their evolution.</p> <p>The trainee's task would be to build appropriate optical systems to generate laser plasma and to observe its spectrum, as well as to perform measurements of this spectrum using a grating spectrometer and a camera with an image intensifier.</p> <p>The trainee will be acquainted with the principles of working with high-power pulsed lasers, methods of measuring their parameters, as well as emission spectroscopy techniques with temporal resolution.</p>	
Main research tool	
Nd:YAG nanosecond lasers with higher harmonics generators, grating spectrometers, CCD cameras with image intensifiers, plasma emission spectroscopy	
Additional requirements to the candidate	
<ul style="list-style-type: none"> - interest in experimental work - basic knowledge of optics 	
Possibility to continue student internship in the form of:	
Diploma thesis (master's or bachelor's degree)	X
PhD study	X