



POLISH NATIONAL AGENCY
FOR ACADEMIC EXCHANGE



STER
PROGRAMME

<p>name of the unit:</p> <p>LABORATORY OF LASER FLASH PHOTOLYSIS</p> <p>Institute of Applied Radiation Chemistry ., Lodz University of Technology</p>		<p>symbol:</p> <p>I-34</p> <p>http://www.mitr.p.lodz.pl</p>
<p>head of the unit:</p> <p>Marian Wolszczak PhD, DSc, TUL Prof.</p>	<p>potential promoters:</p> <p>Marian Wolszczak PhD, DSc, TUL Prof.</p>	<p>contact person:</p> <p>Marian Wolszczak PhD, DSc, TUL Prof. phone: 48-42-631-31-59 marian.wolszczak@p.lodz.pl</p>
<p>scope of activities:</p> <ul style="list-style-type: none"> • ruthenium polypyridine complexes as a probes of biomolecules • electron transfer process within DNA helix induced by light or ionizing radiation • chemical aspects of photodynamic antitumor therapy and diagnostic • design and development of molecular fluorescence probes • interactions of drugs with human serum albumin • photodeposition of silver nanoparticles on titania coatings or DNA templates • synthesis of albumin nanoparticles by electron beam irradiation • some aspects of the radiation processing of electrically conducting polymers 		<p>graphic material</p>   
<p>present activities:</p> <p>Radical processes in the preparation of protein nanostructures with the use of ionizing radiation. Investigation of the phenomenon of light emission by albumin aggregates. Energy transfer in albumin induced by short pulses of laser light. New sensitizers for converting solar energy into fuel, with particular emphasis on hydrogen. Pulse radiolysis of amino acids and proteins. Long distance electron transfer along DNA helix induced by laser light between two intercalators, influence of nucleotide base sequence. Application of Marcus's theory to the analysis of the process of quenching electronically excited states of molecular probes in organized systems.</p>		
<p>Future activities:</p> <p>Preparation of protein nanostructures of medical importance, converting solar energy into fuel or electricity</p>		
<p>Keywords:</p> <p>Laser flash photolysis, electron transfer, pulse radiolysis, photodynamic antitumor therapy, albumin nanostructures</p>		
<p>List of internship proposal in this research team:</p>		



Photochemical methods to study nanostructures of albumin
Electron transfer within albumin or DNA

[List of attachments:](#)