Diploma Thesis Topics:

- Synthesis and in vitro screening of adhesive peptides
- Application of deconvolution of data from gene expression microarray from differentialy cultivated cells
- Drug delivery system uptake into cancer spheroid models
- Hyaluronic aci degradation in skin
- Preparation and characterization of electrospun vascular grafts
- Preparation of polymeric nanoparticles by electrostatic spraying using laboratory apparatus 4SPIN LAB
- Bicomponent and bifunctional nanofibrous membranes with gradient content of the compounds (adhesive/non-adhesive, hydrophilic/hydrophobic, soluble/insoluble)
- Design and preparation of SERS substrates by electrostatic spinning/spraying method, and verification of their functionality
- Characterisation of nanofibrous materials via polarized Raman spectroscopy
- Numerical simulations of the hydrodynamics of spinning nozzles
- Optical detector for local area and thickness of the nanofiber layers measurement
- Image analysis and their algorithms for nanofibrous layers defectoscopy usage
- Dual-axis manipulator with vacuum gripper system
- Miniature robotic head with movement following the surface of 3D objects
- Sensors of mechanical quantities based on conductive polymeric nanofibers
- Focusing of electrostatic field in the deposition techniques
- 3D hybrid architectures combining micro- and nano structures
- Solvent vapor assisted electrospinning
- Physical principles of electro static spinning
- Study of electrostatic methods for precise surfaces structuring

Dissertations Topics:

- Utilization of CRISPR/Cas9 system in study of hyaluronan biology
- Polymeric films based on modified hyaluronan for applications in medicine
- Preparation and characterization of electrospun vascular grafts
- Preparation of polymeric nanoparticles by electrostatic spraying using laboratory apparatus 4SPIN LAB

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Postdoc Topics:

- The development of analytical methods suitable for characterization of hyaluronan-based derivatives
- Development of smart polymeric carriers based on hyaluronic acid

For more information please contact our manager of educational programs:

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