**Department**

Kostjuk Sergey Viktorovich, Doctor of Chemical Sciences, Professor, Head of the Laboratory of Macromolecular Design, IRM, https://www.sechenov.ru/univers/all/127385/<https://kpfu.ru/Marat.Nasrutdinov>&p\_lang=2

**Scientific interests**: Sciences: Chemistry and Materials Science.

**Research project:** Macromolecular design of polymeric materials for medical and technical purposes

**Topics and content of the research project:**

Macromolecular design of polymeric materials for medical and technical purposes

Supervisor - Kostjuk Sergey Viktorovich, Doctor of Chemical Sciences, Professor, Head of the Laboratory of Macromolecular Design, IRM, https://www.sechenov.ru/univers/all/127385/[https://kpfu.ru/oskar.sachenkov&p\_lang](https://kpfu.ru/oskar.sachenkov%26p_lang)=2

Chemistry and Materials Science.

Working languages: Russian, English

**Aims and Objectives of the research project:**

Development of fundamentally new, environmentally friendly approaches for cationic polymerization of vinyl monomers, as well as in situ transformation of cationic polymerization into radical for precision synthesis of functional polymers and more complex macromolecular structures for medical and technical purposes.

• Development of methods for synthesizing polymers with specified physicochemical and mechanical properties by controlled cationic and radical polymerization methods;

• Carrying out photopolymerization of vinyl monomers;

• Study of physicochemical properties of materials by DSC, turbidimetry, rheometry,

• Study of mechanical and rheological properties of materials by AFM, uniaxial stretching, rheometry;

• Study of polymer structure by NMR spectroscopy

Methods used:

organic synthesis, cationic and radical polymerization, photopolymerization, DSC, turbidimetry, rheometry, AFM, uniaxial stretching, gel permeation chromatography, NMR spectroscopy

**Position Description:**

Implementation of scientific research, analysis of obtained data, preparation of publications and patents, writing papers.

Salary, position, contract term: 0.5-1.0 of the rate; research fellow; 1 year.

Salary: 40-100 thousand rubles (based on interview results).

**Postdoc requirements:** more than 5 publications in scientific journals Q2-Q1, CV, experience in the field of polymer synthesis and/or study of physicochemical properties of polymeric materials confirmed by publications (at least 3 articles). Experience in working with DSC, gel chromatograph. Experience in analyzing NMR spectra of organic substances and polymers. Expected results: publication of at least 3 articles per year, publication of 2 patents, supervision of 1 student or master's student, participation in at least 1 conference per year.