

## PhD Project

Title: **Nanoscale chemical imaging of selected biomedical samples**

Beamline: CIRI

Scientific Supervisor: dr hab. Tomasz P. Wróbel, [tomek.wrobel@uj.edu.pl](mailto:tomek.wrobel@uj.edu.pl)

SOLARIS Supervisor: dr hab. Tomasz P. Wróbel

### Short description:

This project focuses on creating appropriate experimental approaches for biomedical sample preparation and measurements in the nanoscale. AFM based IR imaging is a new sub-field of IR imaging and presents new challenges for single cells or biomaterials characterization. This project will be primarily focused on developing a protocol for sample handling and measurements. Once this is established a series of cell lines representative of civilization diseases will be studied along with the effects of drugs. The specific goals will include AFM-IR data acquisition on the newly built CIRI beamline, cell cultures and data handling.

### Requirements to the candidate:

- knowledge of the topics related to the interaction of infrared with matter
- English language skills enabling the presentation of scientific results in written and oral form
- experience with research equipment
- second degree in physics, chemistry, material sciences, or a related field
- knowledge of vibrational spectroscopy methods – FTIR or Raman
- knowledge of synchrotron methods, beamline components, and research equipment will be beneficial

### Starting date:

To be agreed between the supervisor and the candidate