

OPTIMA

Optical and Photonic Technologies for Imaging in Materials and Advanced Biomedical Applications

Mission & Vision

We aim to lead in **applied optical technologies**, developing quantitative, high-resolution imaging, data processing, and analysis methods for biomedical, cognitive, and material sciences, from **fundamental research to practical implementation and commercialization**.

Three pillars of innovation

Human Body



Non-invasive optical tools to assess the microscale **structure and function of cells** for developmental biology and diagnostics of cancer and vision and systemic diseases

Human Mind



Pioneering rapid brain state assessment methods for **evaluation of cognitive patterns** in healthy individuals and subjects with neurodegenerative diseases

Human Creations



Non-destructive techniques that reveal the **microstructure of art objects** and archaeological artifacts, helping to preserve cultural heritage

Team diversity: a synergistic force

A multidisciplinary team of 15 researchers from **five faculties** and **six departments**, enabling a synergistic approach to foster **cross-fertilization of ideas between disciplines**.



Professors & Scientists

Seasoned professors, early- and mid-career researchers



Theoreticians & Experimentalists

Experts in engineering, AI & optical imaging



International & Domestic

Integrating Polish and international members



Academics & Entrepreneurs

Scientists experienced in commercialization

Key achievements



80M+ PLN in Total Funding

Poland, Europe, Australia



500+ Total Publications

collective H-index: 49



32+ Supervised PhDs



44 Patents

Poland, Europe, USA, Japan, Australia

Commercialization & Spin-Offs

INOKO NCU's first spin-out (i.e. to **OPTOPOL, CANON**)
OncoRes Medical startup (**\$15M USD** capital funding)



Awards

Optica Fellow, Innovator UMK,
Top 100 Women in AI



Global and national collaborations

~85 unique collaborations in biomedical optics, neuroimaging, and heritage science

National Partners

~30 collaborations including Universities, Hospitals and Industry



International Partners

15+ countries in Europe, North America, Asia and Australia

