



DANUBE PRIVATE UNIVERSITY
Austria

PhD Projects “Precision and Personalized Medicine”

Academic year 2026/2027

Prof. Dr. Mandana Amiri (Email: mandana.amiri@dp-uni.ac.at)

1. Nanoplastic Electrochemical Sensing Using a Smart Peptide-Based Interface
2. MOF–Aptamer Hybrid Electrochemical Biosensor for Rapid Tuberculosis Diagnostics
3. Multiplex Electrochemiluminescence Sensor for Cardiovascular Disease
4. Electrochemiluminescence Approach for the Sensing of Viral DNA

Priv.-Doz. Dr. Atanas G. Atanasov (Email: atanas.atanasov@lbg.ac.at)

1. Communicating Pharmacologically Active Substances: A Social Media-Based Analysis – **Co-Supervisor:** Olena Litvinova (DPU)
2. Public Perception and Misinformation on Dietary Supplements reflected on Social Media – **Co-Supervisor:** Olena Litvinova (DPU)
3. Communicating Metabolic Health: Public Perceptions and Social Media Strategies for Raising Awareness of Metabolic Syndrome – **Co-Supervisor:** Olena Litvinova (DPU)

Univ.-Prof. Dr. Ralf Braun (Email: ralf.braun@dp-uni.ac.at)

1. Dissecting Evolutionary Conserved Mechanisms of Proteostasis in Yeast Models for Human TDP-43 Proteinopathies
 2. Specific Changes in Saliva Composition under Physiological and Pathophysiological Conditions and Consideration of Possible Diagnostic Potentials
 3. Environmental Triggers of Protein Misfolding in Neurodegenerative Disorders
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Assoc. Prof. Jakub Dostalek, PhD (Email: jakub.dostalek@dp-uni.ac.at)

1. Volatile Organic Compound (VOC) Detection in Exhaled Breath as an Alternative for Early Diagnostics – **Co-Supervisor:** Asst. Prof. Dr. Juan A. Allegretto (DPU)
2. Ultrasensitive Optical Biosensors with Digital Readout Format for Liquid Biopsy – **Co-Supervisor:** Asst. Prof. Dr. Juan A. Allegretto (DPU)
3. Bioassay and biointerface design for plasmonic biosensors with single-molecule sensitivity – **Co-Supervisor:** Katharina Schmidt, PhD (DPU)

Univ.-Prof. Priv.-Doz. Dr. Julia Furtner-Srajer, PhD, MBA
(Email: julia.furtner-srajer@dp-uni.ac.at)

1. Advanced Imaging Based Response Assessment in Glioblastoma: From Conventional MRI to Artificial Intelligence

Prof. Hossam Haick, PhD (Email: hossam.haick@dp-uni.ac.at)

1. A Novel Wearable Molecular Imaging Patch for Breast Cancer Detection and Therapeutic Evaluation
 2. Mapping Pollution-Driven Alzheimer's Disease with Chemical Tomography
 3. A Theranostic Precision Psychiatry Platform for Schizophrenia Integrating Spatiotemporal Scanner of Volatile Biomarkers, Organoids, and AI-Guided Clinical Trials
 4. Eco-Friendly Wearable Patch for Suture-Free Wound Closure and Real-Time Healing Monitoring
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Asst. Prof. Priv.-Doz. Sepideh Hatamikia (Email: sepideh.hatamikia@dp-uni.ac.at)

1. Assessments of Alzheimer's disease by an AI chatbot using longitudinal multi-modal data
2. Multi-omics integration and AI to predict treatment response in gastrointestinal diseases
3. Developments of AI prediction tools for management of thyroid diseases/cancer

Assoc. Prof. Maja Henjakovic (Email: maja.henjakovic@dp-uni.ac.at)

1. Impact of Oral Nano- and Microplastic Exposure on Cardiovascular Parameters in Humans
2. Plastic Particle-Induced Effects on Human Erythrocytes under Physiologically Relevant Particle Sizes, Shapes, Concentrations, and Conditions
3. Effects of Nano- and Microplastics on Human Renal Cells: Impact of Realistic Particle Sizes, Shapes, and Concentrations under Physiological and Pathophysiological Conditions

Univ.-Prof. Priv.-Doz. DI Dr. Christoph Kleber (Email: christoph.kleber@dp-uni.ac.at)

1. Surface Modification and Materials Development of Medical Implants with Tailored Osseointegration or Bioresorbable Properties
2. Universal Platform for Intelligent Nosing and Sensing



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Prof. Dr. Wolfgang Knoll (Email: wolfgang.knoll@mailbox.org)

1. Electronic Sensors to Quantify Health-Relevant Compounds Delivered by Microbiome Bacteria: Measuring Gut Microbiome Quality and Product Formation in Biotechnology – **Co-Supervisor:** Dr. Frank Rosenau (*Ulm University, Germany*)
2. High-Performance Differential SELEX in Pharmaceutical Biotechnology: Specific Aptamers Against Antigen Binding Site of Antibodies Mimicking the Original Target Epitope – **Co-Supervisor:** Dr. Frank Rosenau (*Ulm University, Germany*)
3. Biomimetic Electronic Smell Sensor for Breath Biopsy – **Co-Supervisor:** Dr. Frank Rosenau (*Ulm University, Germany*)
4. DNA- and PNA Aptamer-Based Sensing Systems – **Co-Supervisor:** Prof. Roberto Corradini (*University of Parma, Italy*)

Assoc. Prof. Priv.-Doz. Amirreza Mahbod, PhD (Email: amirreza.mahbod@dp-uni.ac.at)

1. Advancing Computational Pathology with Foundation Models – **Co-Supervisors:** Prof. Dr. Wolfgang Hulla (*University Hospital Wiener Neustadt, Dermatology*); Univ.-Prof. Priv.-Doz. Dr. Ramona Woitek (*DPU*)
2. Deep Learning-Based Methods for Joint Nuclei and Tissue Segmentation in Histopathology – **Co-Supervisors:** Prof. Dr. Wolfgang Hulla (*University Hospital Wiener Neustadt, Dermatology*); Univ.-Prof. Priv.-Doz. Dr. Ramona Woitek (*DPU*)
3. AI-Powered Computational Approaches for Enhanced Skin Lesion Image Analysis – **Co-Supervisors:** Prof. Dr. Robert Müllegger (*University Hospital Wiener Neustadt, Dermatology*); Univ.-Prof. Priv.-Doz. Dr. Ramona Woitek (*DPU*)



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Univ.-Prof. DI Dr. Winfried Neuhaus (Email: winfried.neuhaus@ait.ac.at)

1. Development and Implementation of Robust Blood-Brain Barrier Models into a Neurotoxicity In Vitro Test Battery
2. The Role of the Blood-Brain Barrier in Neurodevelopmental Diseases
3. Effects of Micro- and Nanoplastics on Human In Vitro Central Nervous System Models
4. Evaluation of New Treatment Targets for Cerebral Ischemic Events

Univ.-Prof. Priv.-Doz. Dr. Ramona Woitek (Email: ramona.woitek@dp-uni.ac.at)

1. Multimodal Data Integration and AI for Prognostication in Diseases of the Gastrointestinal Tract – **Co-Supervisor:** Prim. Univ.-Prof. Dr. Thomas Matthias Scherzer (*University Hospital Wiener Neustadt, Gastroenterology and Hepatology*)
2. AI and Multiomics for the Development of Predictive Biomarkers in Ovarian Cancer – **Co-Supervisor:** Dr. Zoltan Derzsy (*University Hospital Wiener Neustadt, Gynaecology and Obstetrics*)

Asst. Prof. Dr. Olga Zarić (Email: olgica.zaric@dp-uni.ac.at)

- Advanced Deep Learning Methods for Super-Resolution Data Reconstruction for X-Nuclei Imaging – **Co-Supervisor:** Univ.-Prof. Priv.-Doz. Dr. Ramona Woitek (DPU)



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Assoc. Prof. Youbin Zheng (Email: youbin.zheng@dp-uni.ac.at)

1. AI-Enabled Real-Time Urine Analysis for Personalized Health Management
2. Stiffness-Tunable Microneedle Sensors for Continuous Health Monitoring
3. Interfacial Protein Dynamics and Molecular Recognition in Droplet-Based Triboelectric Biosensors – **Co-Supervisor:** Dr. Nataliia Gnyliukh (DPU)
4. Engineering Molecular Recognition Interfaces for Continuous Microneedle Biosensing – **Co-Supervisor:** Dr. Nataliia Gnyliukh (DPU)



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