

CURRICULUM VITAE

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1. PROFESSIONAL INTERESTS

Combined aspects of nanophotonics and materials research applied in optical sensors, biosensors, and light management in thin film optical devices. Analytical technologies for rapid and sensitive detection of chemical and biological species relevant to medical diagnostics and food control.

2. KEY AREAS OF EXPERTIES

Near field and guided wave optics, plasmonics, optical sensors and biosensors, amplification strategies in fluorescence and Raman spectroscopy, metallic nanostructures, hydrogels, polymer-metal hybrid materials, biomolecular interaction analysis.

3. EDUCATION

Nov. 2006 – Oct. 2007, Postdoctoral training (Max Planck Institute for Polymer Research, Mainz, Germany).

Topic: Long range surface plasmon-enhanced fluorescence with hydrogel-based biointerfaces for biosensor applications.

Advisor: Prof. Wolfgang Knoll

Sept. 2000 – Oct. 2006, Doctoral studies (Charles University, Prague, Czech Republic) study program “Quantum Optics and Optoelectronics”.

Thesis: High information capacity optical sensors with surface plasmons.

Supervisor: Prof. Jiri Homola

Sept. 1995 – Jun. 2000, Master studies (Charles University, Prague, Czech Republic) study program “Optics and Optoelectronics”.

Thesis: Analysis and characterization of an optical system of a dual channel sensor based on resonant excitation of surface plasmons.

Supervisor: Prof. Jiri Homola

4. PROFESSIONAL EXPERIENCE

Jan. 2016 - now, Senior Scientist / Jan. 2009 – Dec. 2015, Project leader. (AIT - Austrian Institute of Technology GmbH, Vienna, Austria). Research group focusing on optical biosensors, plasmonic enhancement in optical spectroscopy, and thin film photovoltaics. Implementation of developed methods and materials in sensors for medical diagnosis and food safety.

Nov. 2015 – Tan Chin Tuan fellow (Nanyang Technological University, Singapore). One month stay at the Center for Biomimetic Sensor Sciences (CBSS), Materials Engineering Sciences Department. Collaboration with Prof. Liedberg on polymer biointerfaces, exosome analysis, and biosensors for continuous monitoring of drugs.

Nov. – Dec. 2012 – Sabbatical (Nanyang Technological University, Singapore). One and half month stay at the Center for Biomimetic Sensor Sciences (CBSS), Materials Engineering Sciences Department. Joint work with Prof. Liedberg on plasmonic biosensors and biointerfaces, establishing projects supported by the exchange program of International Graduate School.

Nov. 2007 – Dec. 2008, Project leader (Max Planck Institute for Polymer Research, Mainz, Germany). Head of a group pursuing research in optical sensors and biosensors exploiting guided wave optics, surface plasmon resonance (SPR), plasmon-enhanced fluorescence (PEF), and hydrogel materials.

Aug. 2001 – Dec. 2001, Visiting scientist (Electrical Engineering Department, University of Washington, Seattle, USA). Carried out a prototype of miniaturized multichannel SPR sensor.

Aug. 2000 – Dec. 2000, Visiting scientist (Electrical Engineering Department, University of Washington, Seattle, USA). Designed a surface plasmon resonance (SPR) sensor system with improved stability and applied it for detection of toxins (Staphylococcal Enterotoxin B) in realistic samples.

1998 – 2006, Research assistant (Institute of Radio Engineering and Electronics, Prague, Czech Republic). Surface plasmon resonance (SPR) sensors relying on diffraction gratings, prism coupler elements and integrated optical waveguides for high capacity and portable systems. Developed high throughput sensor devices for biosensor applications in environmental monitoring (pesticides, endocrine disruptors).

Member of technical organizing committee of symposia including International Workshop Biophotonics 2011, June 8th-10th in Parma (Italy) and International Conference on Surface Plasmon Photonics 6 – SPP6, May 26th – May 31st 2013 in Ottawa (Canada). Organized a session on Plasmonics in Biomedicine at Annual CEITEC conference in October 21st-23rd, 2014.

Reviewer of papers for journals including Nature Nanotechnology, Angewandte Chemie, Small, Biosensors & Bioelectronics, Analytical Chemistry, Advanced Materials, Analytical and Bioanalytical Chemistry, Analyst, Applied Surface Sciences, Sensors, Macromolecular Chemistry, Optics Express, Reactive and Functional Polymers, Journal of Physical Chemistry, ACS Applied Materials &

Interfaces, Sensors and Actuators B, Acta Biomaterialia, Applied Surface Science, Colloids and Surfaces B: Biointerfaces, Materials Science and Engineering C, Journal of Electroanalytical Chemistry, Reactive and Functional Polymers, Plasmonics, Micro-Electronic Engineering.

Reviewer of research grant proposals for A*STAR Grant Agency (Singapore), Czech Science Foundation (Czech Republic), Israeli Ministry of Health (Israel), Operational Program Research and Development for Innovation, Czech Ministry for Education and Sport (Czech Republic), Swiss National Science Foundation (Switzerland), National Science Centre (Poland), Science Foundation of Ireland.

Guest editor of a special issue of a Journal of Microelectronic Engineering with the conference Micro- and Nanotechnology/engineering for Life Sciences and Biology, September 19-23rd 2016, Vienna, Austria.

5. ACADEMIC EXPERIENCE

Supervision of students and scholars: Serves / served as a supervisor of 14 doctoral students. Six students already graduated at Vienna University of Natural Resources and Applied Life Sciences (Koji Toma 2009-2012, Mana Toma 2009-2012, Nityanand Sharma 2012-2015), Mainz Gutenberg University (Chun Jen Huang 2007-2010, Yi Wang 2007-2010, Martin Bauch 2011-2014), TU Wien (Hamid Keshmiri,, Imran Khan 2013-2017) and Vienna University of Natural Resources and Applied Life Sciences (Agnes Reiner 2014-2017, Khulan Sergelen 2012-2017). Exchanged PhD students through a network of international collaborators in Europe (Prof. Homola, Dr. Brynda - Czech Republic, Prof. Sabine Szuneritz - France, Prof. Minuni, Prof. Descrovi – Italy, Prof. Lau - UK), Asia (Prof. Liedberg, Prof. Miserez – Singapore, Prof. Wei - China), Australia (Prof. Thierry). Regular training of internship students.

Teaching activities: Fachhochschule Technikum Wien (Nanotechnology course on “Optical Biosensors”, 4 hours per semester from 2012-now) and University of Catania (“Optical biosensors”, 5 hours at 2013). Served as an opponent at doctoral defenses - University of Bath at 2010, University of Padua at 2013, University of Linköping at 2014, Nanyang Technological University at 2014 and 2017, Brno University of Technology in 2015. Lecture at SAMOSS Marie Curie ITN in Vienna, 8th June 2016.

6. RESEARCH GRANTS

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| 2018-2020 | ERANET, PLABAN (JD group budget 150 k€) |
| 2015-2018 | H2020 European Commission, ULTRAPLACAD (JD group budget of 530 k€). |
| 2015-2018 | Marie Curie Network - European Commission, BIOGEL (JD group budget of 390 k€). |

- 2013-2016 Austrian Science Fund – FWF (Austria), PLASMOSOL – Plasmonic Organic Solar Cell. With NanoTecCenter Weiz Forschungsgesellschaft mbH. Budget of 323 k€ (JD group 155 k€).
- 2013-2016 Austrian Science Fund – FWF (Austria), ACTIPLAS - Active Plasmonics with Responsive Hydrogels (JD group budget of 170 k€).
- 2012-2017 International Graduate School (IGS), support of three students within the framework of joint program between University of Natural Resources and Applied Life Sciences (Austria) and Nanyang Technological University (Singapore), JD budget of ~ 300 k€.
- 2012 Nitto Denko (Singapore), industrial project HISAUR on Hydrogel improved stability for assays in urine, total budget of 160 k€.
- 2011-2014 Austrian Research Promotion Agency – FFG (Austria) project NILPlasmonics supported through the cluster NILAustria. In cooperation with Joanneum GmbH and Onkotek GmbH (JD group budget of 126 k€).

7. SCHOLARSHIPS AND AWARDS

- 2005 Selected for “Meeting of Nobel Laureates” in Lindau, Germany.
- 2005 Josef Hlávka’s price for “Best students and graduated students of Prague Universities, Brno Polytechnic and young talented researchers in Academy of Sciences of the Czech Republic”.
- 2006 Max Planck Society Fellowship, Germany.
- 2015 Tan Chin Tuan Fellowship, NTU, Singapore

8. PUBLICATION ACTIVITIES

Authored 13 book chapters, > 60 peer reviewed journal papers which received >2150 / 3300 citations, h-index of 23 / 28, according to Web of Science / Google Scholar, respectively, in May 2018. Presented 14 invited talks at international conferences. Holds 4 patents.