

Curriculum vitae – Peter Petrik, 2024

Personal data

- *Position:* Scientific Advisor and Head of Department
Institute of Technical Physics and Materials Science
HUN-REN Centre for Energy Research
University Professor
Department of Electrical Engineering
Faculty of Science and Technology
University of Debrecen
- *Date of birth:* 22 March 1970
- *Citizenship:* Hungarian
- *Marital status:* married, two children

Education

- 1994 M.Sc. in Engineering
Faculty of Electrical Engineering, Technical University of Budapest
- 2000 Ph.D. in Physics
Chair of Experimental Physics, Technical University of Budapest
Chair of Electron Devices, Friedrich-Alexander University, Erlangen, Germany
MFA
- 2015 DSc (Doctor of the Hungarian Academy of Sciences) in Engineering
- 2019 Habilitation at the Budapest University of Technology and Economics
- 2023 University Professor

Employment

- 1995 Junior researcher (MFA)
- 2000 Research fellow (MFA)
- 2004 Senior researcher (MFA), Head of Ellipsometry Laboratory
- 2016 Scientific advisor (EK MFA), Head of Photonics Department
- 2022 Senior lecturer (University of Debrecen)
- 2023 Professor (University of Debrecen)

Research

- Photonics of electrical and functional nanomaterials
- Development of optical inspection devices and evaluation methods
- 167 publications in peer-reviewed international journals, 8 book chapters, 4 patents
- Supervisor of 7 PhD students and 13 diploma works
- Patent for the optical measurement of thin films on large surfaces (EP2160591B1)
- EU FP6 (ANNA) project coordination for the establishment of an accredited ellipsometry laboratory
- Principal symposium organizer at the 2012 Fall Meeting of the European Materials Research Society (2012)

Awards and prizes

- 2000 Prize of the Hungarian Academy of Sciences for Young Researchers
- 2001 Postdoctoral Prize of MFA
- 2007 Paul Drude Award (<http://petrik.ellipsometry.hu/drude-petrik.pdf>)
(First winner of the Drude Award founded at the 4th International Conference of Spectroscopic Ellipsometry in 2007 for "exceptional contributions to the development and application of spectroscopic ellipsometry" in a range of applications including ion implanted and polycrystalline silicon.)
- 2018 MFA Prize
- 2022 Order of Merit of the Hungarian Republic, Officer's Cross

Guest research

- 1994 Friedrich-Alexander University (FAU) and Fraunhofer IISB, Germany, 6 months, TEMPUS Grant for diploma
- 1995 FAU and IISB, Germany, 1 year, DAAD Grant for PhD
- 1996 FAU and IISB, Germany, 2 months, Soros Grant
- 1997 FAU and IISB, Germany, 3 months, DAAD Grant
- 2000 FAU and IISB, Germany, 4 months, Eötvös Grant
- 2006 University of Toledo, USA, 6 months, HAESF Grant
- 2012 Fraunhofer IISB, Germany, 12 months, EMRP Researcher Excellence Grant
- 2013 Delft University of Technology, Netherlands, 12 months, EMRP Researcher Excellence Grant
- 2016 Federal Institute for Materials Research and Testing (BAM), Germany, 2 months, DAAD Grant

Research grants and projects

- Volkswagen Project ((1997-1999), supported by the Volkswagen Foundation, “Development of optical models for polysilicon layers at high temperature for in situ spectro-ellipsometric measurements during chemical vapor deposition”; project coordinator
- OTKA Postdoctoral Grant (2000-2003), Hungary, “Characterization of polysilicon films using spectroscopic ellipsometry”, principal investigator
- EU IST-2000-29352, FECLAMplus (2001-2003), “Ferroelectric CVD layers for Memory Applications; MFA coordinator
- Bolyai Grant (2003-2005), MTA Hungary, principal investigator
- OTKA K61725 (2006-2009): Ellipsometric modeling of nanograin structures and thin films for biological and (opto)electronical applications; principal investigator
- EU FP6 ANNA (2007-2010), “European Integrated Activity of Excellence and Networking for Nano and Micro-Electronics Analysis” - establishment of the accredited Ellipsometry Laboratory of MFA (<http://www.ellipsometry.hu>); MFA coordinator
- PVMET08 (2008-2011), Hungarian NKTH project; “Development of metrology tools based on electrical and optical techniques for in-line and laboratory qualification of thin film solar cells”; participant
- DAAD-MÖB (2010-2011), German-Hungarian project financed by the German and Hungarian government); “Characterization of gate stacks by ellipsometry”; project leader
- EU STREP FP7, P3SENS (2010-2012), “Polymer photonic multiparametric biochemical sensor for point of care diagnostics”; participant
- Bolyai Grant (2010-2011), MTA Hungary, principal investigator
- OTKA K81842 (2010-2012), “Protein and nanocrystalline semiconductor layers for sensors and photovoltaics”; principal investigator
- EU FP7 EMRP Researcher Excellence Grant (2012) at the Fraunhofer IISB, “Metrology for thin films”; principal investigator at IISB
- EU FP7 EMRP Researcher Excellence Grant (2013) at the TU Delft, Netherlands, “Scatterometry”; TU Delft coordinator
- KMR_12_1 (2013-2014), Hungarian project; “Optical mapping tool for thin films on industrial scales”; participant
- EU FP7 E450EDL (2013-2016); “European 450mm equipment demo line”; participant
- EU FP7 SEA4KET (2013-2016); “Assessment experiments in nanoelectronics and smart systems”; participant
- OTKA K115852 (2015-2018), "Development and optical monitoring of nanostructures for sensing"; principal investigator
- NVKP_16-1-2016-0014 (2017-19), „Az atomerőművekben használt cirkónium

- ötvezetek anyagszerkezeti változásainak hatása a fűtőelemek épségére és a környezeti terhelésre”, participant
- M-ERA.NET (2016-2019), „Sustainable autonomous system for nitrites/nitrates and heavy metals monitoring of natural water sources”, participant
 - OTKA K131515 (2019-2022), „Low-dimensional nanomaterials for the optical sensing of organic molecules on liquid and gas interfaces”, principal investigator
 - M-ERA.NET VOC-DETECT OTKA NN 131269 (2019-2022), „Smart Autonomous System for VOCs detection”, participant
 - EU (EMPIR) POLight (2021-2024), „Pushing bOundaries of nano-dimensional metrology by Light”, MFA coordinator
 - TKP2022-EGA-04 (2022-2025), „Innovative methods for biodetection in medical applications”, workpackage leader
 - OTKA K146181 (2024-2027), „Manipulation and characterization of interfaces by the combination of optical and electrochemical methods for sensor development”, principal investigator

Memberships

- Committee of Electronic Devices and Technologies of the Hungarian Academy of Sciences
- Eötvös Loránd Physical Society
- Bohmische Physical Society
- Prize committee of the Eötvös Loránd Physical Society
- Prize committee of the MTA Bolyai Grant
- Past member of the Scientific Council of MFA

Languages

- Fluent in English and German