

Curriculum vitae – Peter Petrik, 2020

Personal data

- *Address:* EK – Centre for Energy Research
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Tel.: +36 1 3922502
- *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 Technical University of Budapest

Employment

- 1995 Junior researcher (MFA)
- 2000 Research fellow (MFA)
- 2003 Senior researcher (MFA), Head of Ellipsometry Laboratory
- 2017 Scientific advisor (EK MFA), Head of Photonics Department

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
- 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
- OTKA K115852 (2015-2018), "Development and optical monitoring of nanostructures for sensing"; principal investigator
- Further projects: <http://www.ellipsometry.hu>

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

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

Publications and presentations

- 6 book chapters, 230 publications
- 30 talks at international conferences (20 invited)
- Principal symposium organizer at the 2012 Fall Meeting of the European Materials Research Society
(*Highly precise characterization of materials for nano and bio technologies, September 17-21, Warsaw, Poland*)
- Program co-chair of the 3rd International Conference on Spectroscopic Ellipsometry (July 6-11, 2003, Vienna, Austria)
- Advisory and program committee member of numerous other conferences

Research

- Optical metrology of thin films and nanostructures
- *In situ* optical studies for biology and sensorics
- Development of instrumentation for ellipsometry
- Leader of the establishment of the accredited ellipsometry laboratory of MFA
- Major results of the last 5 years: developments in bio-ellipsometry including instrumentation, flow cells, evaluations; models and improved characterizations for nanostructures, dielectric function parameterizations, evaluation strategies; development of optical metrology tools for mapping ellipsometry and scatterometry; development of optical metrology for the characterization of biological, nanostructured and photonic thin films for sensorics.

Teaching

- *University courses*: „Microelectronics and Technology” (Friedrich-Alexander University, Erlangen, Germany, 1994); „Elektrotechnik” (Technical University of Budapest, 1996-97); „Metrologies of material properties” (Eötvös Loránd University, Budapest, 2006-)
- *Doctoral Schools*: Budapest University of Technology (Doctoral School of Physics, Oláh György Doctoral School), Óbuda University (Doctoral School of Materials Sciences and Technologies), Roland Eötvös University (Doctoral School of Physics, Hevesy György Doctoral School), University of Pannonia (Doctoral School of Chemical Engineering and Materials Science, Doctoral School of Molecular- and Nanotechnologies), University of Pécs (Doctoral School of Physics)
- *Supervision of students*: Peter Kozma (PhD), Emil Agócs (PhD), Bálint Fodor (PhD, MSc), Judit Nádor (PhD), Benjamin Kalas (PhD, MSc), Alekszej Romanenko (PhD, MSc), Andrea Németh (MSc, BSc), István Mohácsi (MSc), Tímea Hülber (BSc), Milán Janosov (BSc), Zoltán Betyák (BSc), Veronika Cotrau (BSc), Bálint Éles (BSc), Olívia Kozák (BSc), Enikő Molnár (BSc), Alex Szendrei (BSc)

Memberships

- Eötvös Loránd Physical Society
- Bohmische Physical Society
- Prize committee of the Eötvös Loránd Physical Society
- Prize committee of the MTA Bolyai Grant

Languages

- Fluent in English and German