

Curriculum vitae – Peter Petrik, 2018

Personal data

- *Address:* MTA – Hungarian Academy of Sciences
EK – Centre for Energy Research
MFA – Institute for Technical Physics and Materials Science
Photonics Department
Konkoly Thege Rd. 29-33, 1121 Budapest
- *Contacts:* E-mail: petrik.peter@energia.mta.hu
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 (Habilitation) in Engineering

Employment

- 1995 Junior researcher (MFA)
- 2000 Research fellow (MFA)
- 2003 Senior researcher (MFA), Head of Ellipsometry Laboratory
- 2016 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.*)

Publications and presentations

- 4 book chapters, 185 articles
- 28 talks at international conferences (18 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-)
- *Supervision of students:*
 - * Peter Kozma, PhD
 - * Emil Agócs, PhD
 - * Bálint Fodor, PhD, MSC
 - * Judit Nádor, PhD
 - * Benjamin Kalas, PhD
 - * Andrea Németh, MSC, BSC
 - * István Mohácsi, MSC
 - * Alekszej Romanenko, 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

Languages

- Fluent in English and German

Further information

- List of publications: <https://vm.mtmt.hu/search/slist.php?kozid=11832&>
- Personal homepage: <http://petrik.ellipsometry.hu>