

Benjamin Kalas

Curriculum vitae

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Personal data

Born December 18nd, 1990 in Győr, Hungary

Citizenship Hungarian

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Work experience

Name and address of employer Centre for Energy Research - Institute of Technical Physics and Materials Science Konkoly-Thege Miklós str. 29-33, 1121 Budapest, Hungary

Period February 2016. -

Occupation Research Fellow

Main activity Optical investigation of thin layers with spectroscopy ellipsometry

Education

2016 - **Doctoral studies (PhD)**, *University of Pécs, Doctoral School for Physical Sciences, Budapest, .*

Development of high sensitivity *in situ* optical investigation method for investigation of interfaces

2013 - 2016 **Master's studies**, *Budapest University of Technology and Economics, Faculty of Natural Sciences, Budapest, Physics M.Sc.*

Applied physics specialization

Principal subjects Physical optics, Fundamentals of optical design, Optical materials and technologies, Optical information processing and data storage, Surface physics and thin films, Lightsources, Photonics devices, Spectroscopy and Structure of Matter, Semiconductor physics, Crystalline and amorphous materials, Physical materials science, Computer simulations, Computer solution of technical and physical problems

2009–2013 **Bachelor's Degree in Physics**, *Eötvös Loránd University, Faculty of Natural Sciences, Budapest, Physics B.Sc.*

Applied physics specialization (former name: IT physicist)

Principal subjects Physics (Optics, Quantum mechanics, Solid state physics), Higher mathematics Analytical methods in physics, Physics laboratories, Signal processing, Digital and analog measurement, C/C++programming, Numerical methods in physics

2005–2009 **High school**, *Krúdy Gyula Gimnázium, Győr, Graduation.*

B.Sc. thesis

title *Analysis of natural radioactive decay families with semiconductor gamma-spectroscopy*
qualification excellent (5)
supervisor Otto Csorba

M.Sc. thesis

title *Optical investigation of semiconductor and protein nanolayers*
qualification excellent (5)
supervisor Dr. Peter Petrik

List of publications

- 1 J. Nador, B. Kalas, A. Saftics, E. Agocs, P. Kozma, L. Korosi, I. Szekacs, M. Fried, R. Horvath, P. Petrik: "*Plasmon-enhanced two-channel in situ Kretschmann ellipsometry of protein adsorption, cellular adhesion and polyelectrolyte deposition on titania nanostructures*", Optics Express 1094-4087, 2016 doi:10.1364/OE.24.004812

Other scientific activities

- 2016 Conference – 7th International Conference of Spectroscopy Ellipsometry: Poster session
2016 Conference – Chemical Engineering Days: Poster session

Computer skills and competences

programming languages MATLAB, GNU Octave, Labview
script languages Bash, Windows PowerShell
operating systems Windows, Linux (Ubuntu)
CAD/CAM softwares Autodesk AutoCAD, ZEMAX
any other \LaTeX , Gnuplot, Microsoft Office, TCP/IP basics, Adobe Photoshop, Adobe Illustrator

Technical skills and competences

Analytic approach, fundamentals of electronics and measurement technology, numerical methods and simulation, evaluation and documentation of laboratory measurements.

Personal skills and competences

Systematic and logical thinking, ability to concentrate under stress, excellent problem solving skills.

Scientific skills and competences

Spectroscopy Ellipsometry (SE), Basic experience in Modulation Transfer Function, Principles of Fourier Optics, Atomic Force Microscopy (AFM)