CV, A. Matyas

Personal data

Name:	Alpár István Mátyás	
Date of birth:	18.12.1983	
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		Technical University of Munich
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Citizenship:	Hungarian, Romanian	
Parents:	Beniamin Mátyás	
	Mária Mátyás (born. Kvacskay)	

Career

Oct. 2011-present:	**Postdoctoral fellow** Institute for Nanoelectronics, Technical University of Munich, Germany
Oct. 2011:	**PhD degree with high distinction, grade 1.0 (best possible grade)** Advisor: Dr. Christian Jirauschek
Jul. 2007 - Oct. 2011:	**PhD student** Emmy Noether Group at the Institute for Nanoelectronics, Technical University of Munich, Germany
Feb. 2007 - Jul. 2007:	**Guest student** Technical University of Munich, Prof. Paolo Lugli, Institute for Nanoelectronics
Apr. 2005 - Aug 2005:	**Exchange student** Technical University of Munich, Department of Electrical Engineering and Information Technology
Sep. 2002 - Jul. 2007:	**Master of Sciences in electronic and computer engineering Grade 5 (out of 5)** Faculty of Information Technology, Pázmány Péter Catholic University, Budapest (Hungary)
Sep. 1990 - Jun. 2002:	**School. Graduation grade 9.24 (out of 10)** Colegiul National Bethlen Gábor, Aiud (Romania)

Languages

Hungarian:	Mother language
English:	Fluent
Romanian:	Fluent
German:	Intermediate level

Scholarships

2002 – 2007:	Scholarship of the Pázmány Péter Catholic University of Budapest for good grades
2005 – 2007:	Tóth Isaszegi Irén scholarship for good grades (Pázmány endowment, Budapest)

Research interests

Semiconductor structures, lasers, microwave engineering and electronics. Transport and optical properties of quantum cascade lasers and their modeling. Cavity quantum electrodynamics.

Publications in journals

A. Matyas, P. Lugli and C. Jirauschek, *Role of collisional broadening in Monte Carlo simulations of terahertz quantum cascade lasers,* (submitted)

A. Matyas, G. R. Chashmahcharagh, I. Kovacs, P. Lugli, K. Vijayraghavan, M. A. Belkin and C. Jirauschek, *Improved terahertz quantum cascade laser with variable height barriers*, J. Appl. Phys. **111**, 103106 (2012)

S. Fathololoumi, E. Dupont, C. W. I. Chan, Z. R. Wasilewski, S. R. Laframboise, D. Ban, A. Matyas, C. Jirauschek, Q. Hu and H. C. Liu, *Terahertz quantum cascade lasers operating up to ∼200 K with optimized oscillator strength and improved injection tunneling*, Opt. Express **20**, 3866 (2012)

A. Mátyás, P. Lugli and C. Jirauschek, *Photon-induced carrier transport in high efficiency midinfrared quantum cascade lasers*, J. Appl. Phys. **110**, 013108 (2011)

A. Mátyás, C. Jirauschek, F. Peretti, P. Lugli and G. Csaba, *Linear circuit models for on-chip quantum electrodynamics*, IEEE Trans. Microwave Theory and Tech. **59**, 65-71 (2011)

A. Mátyás, M. A. Belkin, P. Lugli and C. Jirauschek, *Temperature performance analysis of terahertz quantum cascade lasers: Vertical versus diagonal designs*, Appl. Phys. Lett. **96**, 201110 (2010)

C. Jirauschek, A. Mátyás and P. Lugli, *Modeling bound-to-continuum terahertz quantum cascade lasers: The role of Coulomb interactions*, J. Appl. Phys. **107**, 013104 (2010)

A. Mátyás, T. Kubis, P. Lugli and C. Jirauschek, *Comparison between semiclassical and full quantum transport analysis of THz quantum cascade lasers*, Physica E **42**, 2628–2631 (2010)

G. Csaba, A. Mátyás, F. Peretti and P. Lugli, *Circuit Modelling of Coupling Between Nanosystems and Microwave Coplanar Waveguides*, Int. J. Circ. Theor. App. **35**, 315 – 324, (2007)

Conferences and proceedings

Z. R. Wasilewski, E. Dupont, S. Fathololoumi, S. R. Laframboise, C. W. I. Chan, H. C. Liu, A. Mátyás, M. Lindskog, S. G. Razavipour, K. Vijay, D. Ban, Q. Hu, C. Jirauschek, A. Wacker and M. A. Belkin, *MBE growth and optimization of THz quantum cascade lasers: towards high temperature operation*, MIOMD-XI Infrared Optoelectronics: Materials and Devices, Chicago, September 4-8 2012

S. Fathololoumi, E. Dupont, I. Chan, Z. Wasilewski, S. Laframboise, D. Ban, A. Matyas, C. Jirauschek, Q. Hu and H. C. Liu, *199.5 K Operation of THz Quantum Cascade Lasers*, Conference on Lasers and Electro Optics (CLEO:2012), Pres. ID: CTu2B.1, San Jose, CA, 2012

A. Mátyás, P. Lugli and C. Jirauschek, *Contribution of lasing action to the current of high power mid-infrared quantum cascade lasers*, The 11$^{\text{th}}$ International Conference on Intersubband Transitions in Quantum Wells, Le Dune Resort, Badesi, Sardinia, Italy, 2011

C. Jirauschek and A. Mátyás, *Intrinsic linewidth analysis for terahertz quantum cascade lasers*, The 11$^{\text{th}}$ International Conference on Intersubband Transitions in Quantum Wells, Le Dune Resort, Badesi, Sardinia, Italy, 2011

A. Mátyás, S. Katz, S. Söntges, A. Vizbaras, P. Lugli, M. C. Amann and C. Jirauschek, *Coupled carrier-field Monte-Carlo analysis of mid-IR quantum cascade lasers*, 14th International Workshop on Computational Electronics (IWCE), pp. 1-4, October 26-29 2010

C. Jirauschek and A. Mátyás, *Self-consistent analysis of lasing action in THz quantum cascade lasers*, OSA Advanced Photonics Congress – Nonlinear Photonics (NP 2010), Pres. ID: NWB5, Karlsruhe, Germany, June 21–24 2010

A. Mátyás, C. Jirauschek, P. Lugli and T. Kubis, *Carrier transport in THz quantum cascade lasers: Are Green's functions necessary?*, Electron Dynamics In Semiconductors, Optoelectronics and Nanostructures (EDISON 16), Pres. ID: Mo-D3, Montpellier, France, August 24–28 2009

C. Jirauschek, A. Mátyás and P. Lugli, *Importance of Coulomb interactions in bound-to-continuum THz quantum cascade lasers*, Electron Dynamics In Semiconductors, Optoelectronics and Nanostructures (EDISON 16), Poster ID: Th-P30, Montpellier, France, August 24–28 2009

A. Mátyás, C. Jirauschek, P. Lugli and T. Kubis, *Comparison between semiclassical and quantum carrier transport analysis of THz QCLs*, International Conference on Modulated Semiconductor Structures (MSS-14), Poster ID: Tu-mP36, Kobe, Japan, July 19–24 2009

Additional information

Software	Programming (Fortran, C++), Math software (MATLAB, Mathematica, Maple), Text processing (Lyx, LaTex, MS Word)
Simulation software	COMSOL Multiphysics, Ansys HFSS, Fast field solvers (FastHenry, FastCap)