



Mgr. Tomáš Samuely, PhD.

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Current position(s):

Senior researcher

Profile:

Dr. T. Samuely is an expert on scanning tunneling microscopy and spectroscopy of superconductors and nanostructures at low temperatures and in ultra-high vacuum. His area of expertise includes thin film growth by sputtering and evaporation. He obtained his PhD degree at the University of Basel, Switzerland, and spent 18 months as a postdoc at KU Leuven, Belgium, where he performed low temperature STM/S experiments on superconducting nanostructures and vortices. He is a coauthor of a unique method of visualization of the dynamics of nanoobjects by STM.

Tomas Samuely is the coauthor of 23 current contents publications with more than 200 citations and was invited to give several talks at Slovak as well as International conferences. (h-index: 9)

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Researcher ID: R-8563-2016

SCOPUS: 24469261000

Experience:

2013 – Investigation of superconducting nanostructures by means of low temperature scanning tunneling microscopy and spectroscopy, building and setting up new laboratory infrastructure for nanotechnology research at Institute of Physics, P. J. Šafárik University in Košice, Slovakia

2012 – 2013 Postdoctoral research fellow, Optimization of ultra-low temperature scanning tunneling microscope and investigation of superconducting nanostructures, Institute for Nanoscale Physics and Chemistry (INPAC), KU Leuven

2009 – 2011 Investigation of superconductors by means of low temperature scanning tunneling microscopy and spectroscopy, building and setting up new laboratory infrastructure for nanotechnology research at Institute of Physics, P. J. Šafárik University in Košice, Slovakia

2004 – 2008 PhD student, assistant, Investigation of self-assembled organic molecules on surfaces in ultra-high vacuum by means of scanning tunneling microscopy and other techniques, Department of Physics of University of Basel, Switzerland

2003 – Diploma student, Study of interaction between proteins and DNA by means of atomic force microscopy. Institute of Physics of Complex Matter Living Matter Physics Laboratory EPFL SB IPMC LPMV CH-1015 Lausanne, Switzerland

2002 – 2003 Student – internship, Study of lipidic bilayers in liposomes by means of ultrasound velocimetry and cyclic voltammetry. Department of biophysics and chemical physics, Faculty of Mathematics, Physics and Informatics, Comenius university in Bratislava, Slovakia

Organisation of Scientific Meetings:

2017 – Member of the Management committee of COST NanocoHybri CA16218

Projects:

1. VEGA 1/0409/15 – principal investigator
2. APVV SK-FR-2017-0015 - principal investigator
3. APVV-17-0020 – co-investigator
4. APVV-16-0068 – co-investigator
5. APVV-0605-14 – co-investigator

Five representative publications:

1. G. Zhang, T. Samuely, Z. Xu, J. K. Jochum, A. Volodin, S. Zhou, P. W. May, O. Onufrienko, J. Kačmarčík, J. A. Steele, J. Li, J. Vanacken, J. Vacík, P. Szabó, H. Yuan, M. B. J. Roeffaers, D. Cerbu, P. Samuely, J. Hofkens, and V. V. Moshchalkov, Superconducting Ferromagnetic Nanodiamond, *ACS Nano* 11, 5358 (2017).
2. G. Zhang, T. Samuely, H. Du, Z. Xu, L. Liu, O. Onufrienko, P. W. May, J. Vanacken, P. Szabó, J. Kačmarčík, H. Yuan, P. Samuely, R. E. Dunin-Borkowski, J. Hofkens, and V. V. Moshchalkov, Bosonic Confinement and Coherence in Disordered Nanodiamond Arrays, *ACS Nano* 11, 11746 (2017).
3. P. Szabó, T. Samuely, V. Hašková, J. Kačmarčík, M. Žemlička, M. Grajcar, J. G. Rodrigo, and P. Samuely, Fermionic scenario for the destruction of superconductivity in ultrathin MoC films evidenced by STM measurements, *Phys. Rev. B* 93, (2016).
4. J. Kačmarčík, Z. Pribulová, T. Samuely, P. Szabó, V. Cambel, J. Šoltýs, E. Herrera, H. Suderow, A. Correa-Orellana, D. Prabhakaran, and P. Samuely, Single-gap superconductivity in β -B i2Pd, *Phys. Rev. B* 93, (2016).
5. G. Zhang, S. Turner, E. A. Ekimov, J. Vanacken, M. Timmermans, T. Samuely, V. A. Sidorov, S. M. Stishov, Y. Lu, B. Deloof, B. Goderis, G. Van Tendeloo, J. Van De Vondel, and V. V. Moshchalkov, Global and local superconductivity in boron-doped granular diamond, *Adv. Mater.* 26, 2034 (2014).

Patents:

Fellowships / Awards / Memberships of Scientific Societies:

2014 – Member of the Top research team – Quantum Magnetism and Nanophysics (QMAGNA) at the Faculty of Science, P. J. Šafárik University in Košice, Slovakia
2015 – Laureate of the Young scientists' competition of the Slovak Physical Society 2015