CV of Szabolcs Csonka (Department of Physics, Budapest University of Technology)

Birth: 1978. Budapest, Hungary
married, father of two boys, one girl (8, 10 & 13 years old)
Associate Professor
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Qualification

2001	MSc in physics "Magnetic phase diagram of BaVS3", Budapest University of Technology and Economics (BME)
2006	PhD, "Electron transport in atomic and molecular junctions", Department of Physics, BME

Employment

2003 - 2005	Hungarian Academy of Sciences, research assistant
2006 - 2009	Department of Physics, BUTE, scientific coworker
2006 - 2008	Marie Curie Fellow, Department of Physics, University Basel, CH, Group of Christian Schonenberger
2009 - 2011	Assistant professor, Department of Physics, BME
2011 -	Associated professor, Department of Physics, BME

Interests

Electron transport in nanostructures
Hybrid Nanostructures: combination of superconductors, ferromagnets with semiconductor nanowires, van der Waals heterostrucutres, quantum dots, InAs 2DEGs.
Spintronics, topology in nanodevices, nanocircuits under pressure, novel qubit concepts, superconducting gating, circuit QED.

Important experiences abroad

1999	Erasmus Scholarship, University 'La Sapienza' Rome, Italy (1 semester)
2000 – 2003	Visitor researcher, University of Nijmegen, the Netherlands (4 months)
2004	Visitor researcher, Ecole Polytechnique Fédérale de Lausanne, Switzerland (1 month)
2006 – 2008	Post doc, group of C. Schönenberger, University of Basel, Switzerland
2009 – 2010	Visitor professor program "Quantum Coherence and Computation", Swiss Nanoscience Institute, Switzerland (4 months)
2017	Visitor professor, QDev, Niels Bohr Institute, Copenhagen, DK

Awards

2000	BME Scholarship
2001	National competition for physics students, 1st prize in Solid state physics section
2005	Award of excellent youth scientist, Hungarian Academy of Sciences
2006 –2008	Marie Curie Intra-European Fellowships
2009 –2011	Bolyai János Research Fellowship, Hungarian Academy of Sciences
2010 –	ERC Starting Grant
2011	Talentum Award, Central European Talent Support Foundation
2013 - 2015	Bolyai János Research Fellowship, Hungarian Academy of Sciences
2014	Supervisor of the Year Prize, Pro Progressio Foundation for Education and Research
2016	Gyulai Zoltán Prize, Roland Eötvös Physical Society

2017-2022 Hungarian Academy of Science, Momentum Grant
2020 Hungarian Academy of Science, Physics Prize
2021 BME Pro Progressio, Best Publication Prize of 2020

Teaching experiences

Lectures (presently)

- Nanotechnology and Material Science - for undergrad. and MSc
- New experiments in nanophysics - for undergraduate and MSc
- Transport in complex nanostructures - for undergraduate and Msc
- Applied Solid state physics – for MSc students
- Measurement techniques – for BSc students

Lab and exercise courses

- Trends in nanotechnology (MSc and phd students, BME)
- Nanophysics seminar (MSc students, phd students, BME)
- Condensed matter physics laboratory (4th-year physics students, BME)
- Solid state physics tutorial (3rd-year physics students, BME)
- Physics Laboratory IV (3rd-year physics students, BME)
- Experimental physics tutorial (for high school students)
- Condensed matter physics exercises (UniBasel),
- Condensed matter seminar for graduate and undergraduate students (UniBasel)

Supervision

Group presently consists 2 seniors, 7phd students and 4MSc&BSc students (03/2022). Gergő Fülöp (BSc 2009, MSc 2011, PhD 2016), Endre Tóvari (MSc 2011, PhD 2017), Zoltán Scherübl (MSc 2012, PhD 2020), Attila Márton (BSc 2010, MSc 2013), Szabolcs Hodossy (BSc 2014), Fülöp Bálint (MSc 2014, PhD), Gál István Gergő (BSc 2016), Iván Gergő (BSc 2016), Frank György (BSc 2017,co), Kedves Máté (BSc 2017), Kocsis Mátyás (BSc 2017, MSc 2019, PhD), Kürtössy Olivér (BSc 2017, MSc 2019, PhD), Pálovics Péter (ProjectLab, VIK 2014), Baranyi Marcell (BSc 2018), Sütő Máté (BSc 2017, MSc 2020 co, PhD), Szentpéteri Bálint (2017 BSc), Márffy Albin (BSc 2018, MSc 2020, PhD), Bükki Máté (BSc 2019, co), Bodócs Mihály (BSc 2020, MSc), Havasi Gergely (BSc), Berke Martin (BSc, MSc) Kovács Krausz Zoltán (PhD), Tosson Elalaily (PhD) a BME-én és további 3 MSc projekt és 2 PhD co-supervision Univeristy of Basel.

Founding ID

As principal investigator:

Year	Money for the PI	**Grant details**
2022-2025	150kEUR	**EU FlagERA MultiSpin** “Molecular engineering of layered magnetic materials: towards multifunctional spintronic devices”, Hungarian PI
2022-2025	150kEUR	EU FlagERA 2DSOTECH “2Dimensional van der Waals Spin-Orbit Torque Technology”, Hungarian CoPI
2021-2024	136kEUR	NKFIH K138433 “Proximity effects in nanostructures”, PI, 47.8MHUF
2021-2025	248kEUR	**EU FETOpen, Pathfinder SuperGate,** “Gate Tuneable Superconducting Quantum Electronic”, Hungarian PI,
2019-2024	349kEUR	**EU FETOpen AndQC,** “Andreev qubits for scalable quantum computation”, Hungarian PI
2018-2022	150kEUR	EU FlagERA TopoGraph, “Engineering Topological Superconductivity in Graphene”, Hungarian CoPI,
2018-2022	150kEUR	**EU Quant ERA, SuperTop Network** “Topologically protected states in double nanowire superconductor hybrids”,

		Coordinator, 150kEUR/1490kEUR (own/network budget)
2018-2021	1528kEUR	Vekop Infrastructure 2.3.3-15-2017-00015, "Helium liquefier and recovery system for Central-Hungary", PI, 489MHUF
2017-2022	820kEUR	**MTA Momentum Grant** "Spintronics in low dimensional nanostructures", 262MHUF, PI
2017-2020		EU Marie Curie Int. Eur. Fellowship, TopoGraph, (P. Makk), Supervisor
2016-2020	140kEUR	**EU Flag ERA iSpinText EU Network** "Induced Spin Textures in Van Der Waals Heterostructures", **Coordinator** 140kEuro/703kEuro (own/network budget)
2014		Swiss Sciex " Novel Cooper pair splitter nanodevices", Home mentor
2012		Swiss Sciex "Developing ferromagnetic analyzer nanocircuits", Home mentor
2011-2014	295kEUR	EU FP7 ICT Strep Network SE2ND " Source of Electron Entanglement in Nano Devices"
2010-2015	1496kEUR	**EU ERC Starting Grant** "Cooper Pairs as a source of entanglement"
2009-2011	45kEUR	EU Marie Curie Reintegration Grant "Fabrication and Electron Transport Study of Nanowire based Quantum Devices
2009-2010	78kEUR	Norway-OTKA NNF 78841 "Fabrication and Electron Transport Study of Nanowire based Quantum Devices"
2006-2008		EU Marie Curie Intra European Fellowship, "Exploring entanglement by noise measurements in nanoelectronic devices"

Other scientific activity

2021 -	MTA, Secretary of the Scientific Committee of Solid State Physics
2017-	Hungarian Management Comittee Member of COST Network NanoCoHybri, "Nanoscale coherent hybrid devices for superconducting quantum technologies"
2017 - 2021	Leader of Quantum Electronics Subproject of HunQuTech, NKFIH, „Realization of Quantum Bits, development of quantum information networks" 556MHUF
2014 - 2018	Member of the Physics Panel of Hungarian Scientific Research Fund, OTKA
2012 -	Deputy Head of the Department of Physics, BME
2010 - 2013	Leader of the Nanoelectronics Subproject of Research University grant of BME TÁMOP-4.2.1/B-09/1/KMR-2010-0002

Main collaborations

Prof. Christian Schönenberger (Uni Basel, CH), Prof. Jesper Nygard (QDev, Niels Bohr, DK), Prof. S. Dash (Chalmers), Prof. A. Geresdi (Chalmers), Prof. L. Sorba (NEST, Pisa), Prof. G. Biasiol (Trieste), Prof. A. Di Bernardo (Konstanz), Prof. F. Giazotto (NEST, Pisa), M. Gobbi (San Sebastian), Prof. S. Goswami (TuDelft), P. San-Jose (Madrid), M. Guimaraes (Groningen), Prof. Chrsitoph Strunk (Regensburg, DE), Prof. Alfredo Levy Yeyati (Madrid, Sp), Prof. Ireneusz Weymann (UAM, Poznan, PL),, J. Ye (Groningen), G. Burkard (Konstanz),, J. Cserti (ELTE, HU), P. Rakyta (ELTE, HU), L. Oroszlany (ELTE, HU) L. Tapasztó (MFA, HU), J. Volk (MFA, HU), A. Pályi (BME, HU), G. Zaránd (BME, HU).

Research ID (see details: **https://vm.mtmt.hu//www/index.php?lang=1&AuthorID=10012461**)
Number of publications (peer reviewed journal papers): 54
Total number of citations: >1650, Independent citations: >1400
Hirsch-index: 20, Total impact factor: >355. Average impact/publication > 6.6

Out of the 38 publications most of them appeared in high impact journals of the field: 1 Nature, 1 Nature Comm., 1 Nature Comm. Phys, 8 in PRL, 5 in Nanoletters, 1 in ACS Nano, 2 in NPJ 2D Materials, 1 in 2DMaterials, 5 in Nanoscale, 14 in PRB and 2 in APL.