prof., Ing. Sergej Hloch, Ph.D. (1975)

Publications:
An author or co-author of 2 patents, 2 utility models, over 400 publications (journals with impact factor – 78, other professional journals – 50, proceedings – 120, monograph – 9, chapter in monograph - 1), and number of research reports and research contract reports. Hindex = 23 (WoS)

Education:

Ph.D. (2004)	TUKE –Technical University of Košice, Faculty of Manufacturing Technologies with a seat in Prešov, field of study: Mechanical Engineering.
M.Sc. (2001)	TUKE –Technical University of Košice, Faculty of Manufacturing Technologies with a seat in Prešov, field of study: Mechanical Engineering.

Professional Experience:

2017 – present	Director of Institute of Advanced Manufacturing Technologies FMT TUKE with a seat in Prešov
2018 – present	Senior researcher at Mechanical Engineering Faculty at VŠB TU Ostrava
2015 – present	Professor TUKE –Technical University of Košice, Faculty of Manufacturing Technologies with a seat in Prešov, Dpt. Manufacturing Technologies.
2018 – present	Senior researcher at Department of Material disintegration, Institute of Geonics of the CAS, v. v. i., Ostrava, Czech Republic.
2016 – 2017	Lecturer at Opole University of Technology
2015 – 2016	Lecturer at Faculty of Nursing, University of Prešov in Prešov
2013 – 2018	Fellowship of J.E. Purkyně, Scientist at Department of Material disintegration, Institute of Geonics of the CAS, v. v. i., Ostrava, Czech Republic.
2008 – 2015	Associate Professor - Technical University of Košice, Faculty of Manufacturing Technologies with a seat in Prešov, Dpt. Manufacturing Technologies.
2001 – 2008	Professor Assistant - Technical University of Košice, Faculty of Manufacturing Technologies with a seat in Prešov, Dpt. Manufacturing Technologies.
2000	Wire former at Siemens Michalovce

Projects supervisor:

- GAČR 19-00408S Material integrity and structure at the early stages during pulsating liquid jet interaction
- VEGA 1/0096/18 - Effect of continual and pulsating fluid jet on microstructure, properties and integrity on materials.
- DEPULSMAT APVV-17-0490 Detection of erosion phenomena of pulsating water jet
- WORTH 15_PA07-C1 - Pulsating water jet as an orthopaedic technique without thermal and mechanical damage of large joints with minimal traumatizing impact on patient granted by START Danube Region Project Fund Part financed by EU.
- APVV 02-207 | HydroMon - Abrasive Water Jet and Material Interaction Monitoring Using Vibration and Accoustic Emission, granted by APVV. (Project finished with excellent outcomes)
- VEGA 1/4157/07 Nonlinear mathematical modelling and vibrodiagnostics of cutting hardmachinable mterials by means DoE and Taguchi Design. (Project finished with excellent outcomes)
- VEGA 1/0972/11 Studying the phenomenon interaction abrasive water jet cutting of material through vibrations and accoustic emission. (Project finished with excellent outcomes)
- Increasing of education quality, research and development at Technical university of Košice no. č.029-006TUKE-8/2008.
- International Visegrad Fund – Small Project, Management of Manfacturing Systems.

Projects participation:

- Flexible manufacturing of customized spinal orthoses – OrtoFLEX.

- Central European Regions Cluster for Energy from Renewables NETwork project implementation.
- Project on Operating Regulation of Branisko Tunnel.

Awards:

- 2008 – Werner von Siemens Excellence Award for the best research work "Theoretical Processing and Basic Project of Operational Application of Automated Control of Abrasive Water Jet Cutting of Technical Materials".
- 2009 – Innovative Design of the Year. Award in competition Innovative Design of the Year 2009 for the work "Quality Management of Surfaces Formed by Abrasive Water Jet Cutting by Means of Vibrations and Sound".
- 2009 – Certificate from Scientific Grant Agency VEGA for the most significant outcomes achieved in solution of projects completed in 2009.
- 2011 – The Best Presentation award for "Concept of abrasive water jet technology using at orthopedic surgery during total hip replacement" was awarded at conference Waterjet 2011
- 2012 – The Best Presentation award for „Using water jet in orthopaedic surgery" at International Conference TEAM in Slavonski Brod.
- 2013 – The J. E. Purkyně Fellowship Award.
- 2015 – Certificate of VEGA for the most significant outcomes achieved in solution of projects completed in 2014.
- 2015 – Personality of the Year in Technology, Competition the Slovak Scientist of the Year 2014, for the excellent results achieved within the project of water jet technology research and for outstanding contribution to the interdisciplinary international scientific cooperation in the field of progressive manufacturing technologies.

Professional activities in five years:

- Experimental cutting of biomaterials with pulsating saline liquid.
- Experimental research on generation of high-speed pulsating water jets.
- Machining of materials by abrasive water jets (cutting, milling, drilling, turning) and evaluation of machinability of materials.
- Measurement of stagnation forces of water jets.
- Research focused on high-speed water jet disintegration of materials.
- Study of behaviour of high-speed water jets.
- Study of influence of abrasive material on the process of disintegration.
- Study of surface quality produced by different technological processes.
- Visualization of pulsating water jet and determination of crucial parameters influencing the performance of pulsating jets.

Other activities:

- Member of the Scientific Council of the Faculty of Manufacturing Technologies in Prešov of Technical University in Košice.
- Member of Scientific Council at Institute of Material Research, Slovak Academy of Sciences
- Member of Scientific Committee for PhD study at Mechanical Engineering Faculty, J.J. Strossmayer University in Slavonski Brod.
- Conference organisation (ICMEM 2012, 2014, 2016, 2018, 2020), TEAM 2013.
- Lectures (TFH Wildau; Mechanical Engineering Faculty in Slavonski Brod; Marmara University, Istanbul; Kozsalin University of Technology; Opole Universtity of Technology, University of Belgrade; TU Delf, Indian Institute of Technology Dhanbad, University of Technology Belfort; EuroVienna in Vienna, Technical University of Ostrava, University in Zagreb, Medipol University in Istanbul; Baden-Wuerttemberg Cooperative State University Loerrach, University in Salerno, University of Belgrade, Birla Institute of Technology, Meshra).
- Supervisor of PhD students in Czech Republic, India and Slovakia.

Sergej Hloch, prof, Ing., PhD. was born in Vyškov na Morave, in 1975. He graduated cum laude in Manufacturing Engineering at Technical University of Košice in 2001, specialising in manufacturing technologies. His PhD thesis, which was completed in 2004 at Technical University of Košice, researched the development of abrasive water jet technology. In 2015, he was appointed as a full professor in the field of manufacturing engineering. In 2013 he was awarded by Fellowship J. E. Purkyně at the Institute of Geonics of the Czech Academy of Sciences. Currently he works as a director of Advanced Manufacturing Technologies at Faculty of Manufacturing Technologies TUKE with a seat in Prešov. Created an international multidisciplinary team for utilizing the positive aspects of water jet technology for medical applications. In 2015 he was granted by EU grant - START Danube WORTH 15_PA07-C1, under which created interdisciplinary research team. As the project team leader later intensified cooperation with companies and Universities in Germany (eg Steinbeis-Beratungszentrum Hochdruck-Wasserstrahltechnik, endocon GmbH), the Czech Republic (eg. Institute of Geonics of the CAS), Turkey (eg Istanbul Medipol University), Croatia (eg JJ Strossmayer University in Osijek), Serbia, but also in Slovakia (University Hospital in Prešov). The achieved results were also interesting to the organizers of the iSMIT (International Society for Medical Innovation and Technology) congress at TU Delft in the Netherlands, where he gave an invited lecture, dealing with the topic of using pulsating water jet of orthopaedical purposes. Achievements of the team were presented at events in Switzerland, Germany, India, France and Turkey. Currently, he is also the responsible for SRDA - Detection of erosive effects of pulsating water stream, and other domestic projects. In cooperation with the Institute of Geonics of the ASCR, v.v.i in Ostrava - Poruba, he obtained the GAČR project, focused on the integrity and structure of materials in the initial stages of interaction with a pulsating water stream focusing on surface activation of biomedical materials. Within this project, he also cooperates intensively with the Institute of Physics of Materials of the CAS, v.v.i, Brno. He cooperated within the project - Flexible manufacturing of customized spinal orthoses – OrtoFLEX. He was awarded by: 2008 – Werner von Siemens Excellence Award for the best research work “Theoretical Processing and Basic Project of Operational Application of Automated Control of Abrasive Water Jet Cutting of Technical Materials”. 2009 – Certificate from Scientific Grant Agency VEGA for the most significant outcomes achieved in solution of projects completed in 2009. 2011 – The Best Presentation award for “Concept of abrasive water jet technology using at orthopedic surgery during total hip replacement” was awarded at conference Waterjet 2011, 2012 – The Best Presentation award for „Using water jet in orthopaedic surgery“ at International Conference TEAM in Slavonski Brod. 2013 – The J. E. Purkyně Fellowship Award. 2015 – Certificate of VEGA for the most significant outcomes achieved in solution of projects completed in 2014. He is a member of the editorial board of the international journals Technical Gazette, Energies, Advances in Science and Technology. Research Journal, Strojarstvo. He was/is an external examiner of PhD. Theses at Indian Institute of Technology in Dhanbad, J.J Strossmayer University in Osijek, and Ryerson University in Toronto. He is supervisor of PhD. students from Slovakia and India. Published more than 65 research papers in Current Content, co-author of EU patent. 1,300 WoS citations (without self-citations). Research ID: AAB-3276-2020, Scopus Author ID: 16238442800. He is general chair of ICMEM conference series. www.icmem.eu, https://icmem2020.webnode.sk