Dr. habil. Henrik Zsiborács, PhD

E-mail: zsiboracs.henrik@pen.uni-pannon.hu

WORKPLACE

2020 - **University of Pannonia Nagykanizsa, University Center for Circular Economy, Soós Ernő Research and Development Center, Renewable Energy Research Group**
Position: Research fellow
Specialization: renewable energies, solar energy, solar technologies, energy strategy, energy policy, energy storage technologies, statistics, technical and economic sciences

2017 - 2020 **University of Pannonia - Georgikon Faculty, Department of Economic Methodology**
Position: Department Engineer, Research fellow
Specialization: renewable energies, solar energy, solar technologies, energy strategy, energy policy, energy storage technologies, statistics, technical and economic sciences

STUDIES

2014 - 2017 University of Pannonia - Georgikon Faculty, PhD
Major fields of study: **Photovoltaic (PV) technologies**
Doctoral dissertation: Technical and economic questions about the solar PV module cooling

2016. **University of Natural Resources and Life Sciences, Vienna, Department of Water - Atmosphere - Environment (WAU), Institute of Meteorology (BOKU-Met)**
Erasmus trainee - Austria (3 months)
Tasks: Thermotechnical examinations of photovoltaic modules

2012 - 2014. University of Pannonia - Georgikon Faculty, MSc
Major fields of study: **Rural Development,** Agriculture
Diploma thesis: Solar power plant in Keszthely (Grade: very good)
Qualification: Rural Development Engineer (Grade: very good)

2013. **Martin Luther University Halle – Wittenberg**
Erasmus Student - Germany (4 months)

2008 - 2011. University of Pannonia - Georgikon Faculty, BSc
Major fields of study: **Environmental protection,** agriculture
Diploma thesis: green surface inspection in Keszthely
Qualification: Agricultural Engineer in Environmental Management (Grade: very good)

2003 - 2008. Asbóth Sándor secondary school in Keszthely

SCIENTIFIC RESULTS

2024 **Habilitation degree**

2022 Hungarian Academy of Sciences, VEAB Outstanding Young Researcher Award

LANGUAGE SKILLSS

Working knowledge of English
Working knowledge of German

ACTIVE PARTICIPATION IN THE IMPLEMENTATION OF PROJECTS

2022: 2021-2.1.2-HŐ-2021-00004 Development of a thermal storage unit for waste heat storage and transport, researcher

2022: 2021-2.1.1-EK-2021-00002 Tesseract Storage, researcher

2022: 2021-2.1.1-EK-2021-00001 An examination of the grid role of vanadium redox batteries in the regulation of photovoltaic power plants, researcher

2022: 2021-2.1.1-EK-2021-00007 An examination of the use of sodium-sulfur batteries in smart grids and in joint operation with lithium-ion energy storage technologies, researcher

2022: RRF-2.3.1-21-2022-00009 National Laboratory of Renewable Energy, researcher

2022: CESP Hydrogen and Battery Establishing a hydrogen and battery research and development platform in Central Europe Establishing a hydrogen and battery research and development platform in Central Europe, researcher

2021: 2021-1-BG01-KA220-HED-000032149: Digitization of Higher Education for Renewable Energy Systems in Europe, researcher

2021: KA220-HED - Cooperation partnerships in higher education ERASMUS+

2020: 2020-3.1.2-ZFR-KVG-2020-00006: Power-to-Gas: Development of a biomethane-production unit for seasonal energy storage, pilot project Hungary, Nagykanizsa, researcher

2019: 2019-2.1.13-TÉT_IN-2020-00061: Waste algae to biogas for clean energy and environment: techno-environ-economic prospects, Kazakh-Hungarian energy strategy research, researcher

ACTIVE PARTICIPATION IN THE CREATION OF PATENTS

1: P2200156: Control procedure and module for the sensor units of concentrated photovoltaic technologies using point-focusing glass Fresnel lenses

2: P2200103: Procedure for determining the illuminance of incident ambient light and the direct radiation of the sun detected as a point, for controlling solar-tracking photovoltaic systems

3: P2100394: Sensor unit for concentrated photovoltaic technologies using point-focusing glass Fresnel lenses

4: P2100209 Procedure for controlling active solar-tracking PV systems and circuit layout for the implementation of the procedure

5: P2100170: Procedure for schedule keeping in electricity generation based on weather-dependent renewable energy sources

6: P2100339: Equipment for determining the illuminance of incident ambient light and the direct dariation of the sun detected as a point

7: P2100437: Procedure and circuit layout for detecting the malfunctioning sensor units of active sensor solar-tracking systems

8: In progress: Control method for optimizing the scheduling of photovoltaic systems using solar tracking technology

PROFESSIONAL SKILLS

Technical-economic modelling, creating and developing patents; participation in prototype development; assistance in the professional implementation of tenders; management of energy storage systems; management and design of PV plants and energy storage systems; weather forecast optimization for PV systems; technical-economic modelling related to renewable energies; identification, analysis and evaluation of shading problems in PV power plants; three-dimensional surface and three-dimensional PV models for decision support of large-scale PV investments; analysis and evaluation of the technology-specific energy production characteristics of PV power plants

PUBLIC ACTIVITY

2023 – Founding member of the Energy World Council Association, which was established in cooperation with the Budapest University of Technology and the HUN-REN Energy Research Centre

2023 – 36. Országos Tudományos Diákköri Konferencia Fizika, Földtudományok, és Matematika szekciójában bíráló bizottsági tagság betöltése

2022 – 2023 Chair of the Section at the International Scientific Conference on Tourism and Security

2022 – Active participation in the organisation of the International Scientific Conference on Tourism and Security

2021 Membership of the Organising Committee of the International Scientific Conference on Tourism and Security

2021 – Scientific Association for Energy Management Member of the Renewable Energy and Energy Storage Section

2020 – Member of the Hungarian Academy of Sciences

2018 – 2019 Georgikon Days International Scientific Conference Organising Committee Membership

EDUCATION-RESEARCH

SUBJECT COORDINATOR

Optimisation of weather-dependent renewable energy generation, Renewable energy measurements and data analysis, Characteristics and analysis of renewable energy systems

TEACHING ACTIVITIES

Alternative and renewable energies, Urban management, The importance of photovoltaic technologies in the 21st century, Sectoral economics, Sectoral territorial analyses, Renewable energies, Research methodology, Data processing and methodology, Thesis writing, Diploma seminar, International economics, Energy management and environmental protection, Thermal energy balance models, Introduction into solar modules, Circular energy management, Optimising energy production from weather-dependent renewable energy sources, Renewable energy measurements and data analysis, Characteristics and analysis of renewable energy systems

TIME SPENT IN EDUCATION

10 years

Publications

Impact factor: 112,796
Hirsch index: 13
113 recognized scientific publications with 643 independent references (as of 2025-01-22)
See the most important ones on the following webpage:
https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=10048903&paging=1;5000

Nagykanizsa, 22/01/2024