

Dariusz Borkowski



Academic degrees : PhD, Sc.D.

Position : Professor CUT

Engineering - technical field

Discipline Automation, electronics and electrical engineering

Academic qualifications:

Vice-dean for organizational matters and cooperation with industry
Representative of the Faculty of Electrical and Computer Engineering to the TECH FELLOWS team for the purpose conducting joint activities of CUT and Departments for commercialization

Membership in professional and academic boards :

Member: IEEE, Association of Polish Electrical Engineers (SEP), Polish Society of Electrical Engineering Theoretical and Applied (PTETiS)

Academic merits :

Author of a scientific monograph (in English): "Matrix Converter As Power Flow Controller In Transmission Line - Operation Analysis In Frequency Domain ", 50 peer-reviewed publications national and international magazines. Participant and co-author of articles at 30 conferences scientific. Manager of six industrial projects, contractor in 5 grants and co-author of 5 expert opinions.

Professional qualifications/language skills

Electric permissions; English - very good, German - basic

Research field :

The research concerns the analysis of the operation of selected generation systems used in low-power hydroelectric power plants and improvement of the parameters of generated electricity. Area research includes the improvement of the parameters of generated electricity through the selection of appropriate technical solutions and control algorithms. It concerns both energy conversion systems operating at a constant rotational speed, as well as systems with variable rotational speed. In particular, a system consisting of a synchronous generator with permanent magnets and AC / AC power electronic converter is analysed. Research focuses on the optimal adjusting the energy generation system to the specific nature of the energy source (e.g. water turbine) in order to obtain maximum efficiency of the energy conversion system. The results of these studies are implemented in real SHP facilities, e.g. containing two hydro-sets with an innovative design (integrated turbine with generator) with a total power of 150kW. This facility was developed with the implementation of control strategy ensuring the maximum overall efficiency and correct maintenance-free operation. In the field of research work is also the energy recovery from pressure reduction in water distribution networks (e.g. district heating). The prototype reducer system of 5 kW with a converter that transfers energy to the network was designed and tested in a real heat exchanger substation.

Address

Cracow University of Technology,
Faculty of Environmental Engineering and Energy
Address: Warszawska St. 24, 31-155 Krakow
e-mail : dborkowski@pk.edu.pl

Useful links :

<https://suw.biblos.pk.edu.pl/userHomepage&uld=646&rel=BPP-author>
