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Paper ID: 171

Paper Title: *Adaptive Grid-Forming Control for Enhanced Stability of Renewable-Dominated Microgrids Under Photovoltaic Power Fluctuations*

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Short Bio:

Ammar Samir Abdelwahab is a PhD researcher in Electrical Power Engineering at the Budapest University of Technology and Economics (BME), Hungary, where his research focuses on grid-forming control, renewable-energy integration, low-inertia power systems, and advanced control of power electronic converters. He holds an MSc in Electrical Power and Machines Engineering from Cairo University, where he graduated with high distinction, and a BEng in Electrical Engineering from Benha University, Egypt.

His current research interests include grid-forming inverters, adaptive and predictive control, stability and frequency regulation of inverter-dominated grids, islanded microgrids, fault ride-through, and power-system resilience under low-inertia and weak-grid conditions. His research combines advanced control methods with simulation-based analysis and quantitative performance assessment of renewable-energy-based power systems.

Alongside his academic research, he has professional experience in electrical engineering and infrastructure projects, providing a practical engineering perspective to his research in modern power systems and renewable-energy integration.