



The 5th IEEE International Conference on Renewable Energy Research and Applications (ICRERA 2016)

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This special issue of *Environmental Science and Pollution Research* highlights selected papers presented at the 5th IEEE International Conference on Renewable Energy Research and Applications (ICRERA 2016) which was held in Birmingham, from 20 to 23 November 2016, and officially hosted by the Aston University.

The purpose of the International Conference on Renewable Energy Research and Applications (ICRERA) 2016 is to bring together researchers, engineers, manufacturers, practitioners, customers and participants from all over the world to share and discuss advances and developments in renewable energy research and applications.

After the success of the first, second, third, and fourth edition of ICRERA in Nagasaki, Madrid, Milwaukee, Palermo, and in this fifth conference, ICRERA will continue promoting and disseminating knowledge concerning several topics and technologies related to renewable (green) energy systems and sources. ICRERA aims to present important results to the international community of renewable energy fields in the

form of research, development, applications, design and technology. It is therefore aimed at assisting researchers, scientists, manufacturers, companies, communities, agencies, associations and societies to keep abreast on new ideas and developments in their specialist fields and to unite in finding alternative energy solutions to current issues such as the greenhouse effect, sustainable and clean energy issues.

ICRERA 2016 brought together academics, professionals, and policy makers to discuss new developments, approaches, and strategies in the fields of renewable energy research and applications. A total of 327 papers submitted and also 208 registered participants from over 46 countries attended the ICRERA 2016 which was characterized by these 22 major scientific themes:

- New Trends and Technologies for RESSs
- Policies and Strategies for RESSs
- Energy Transformation from Renewable Energy System (RES) to Grid
- Novel Energy Conversion Studies for RESSs
- Power Devices and Driving Circuits for RESSs
- Control Techniques for RESSs
- Grid Interactive Systems Used in Hybrid RESSs
- Performance Analysis of RESSs
- Hybrid RESSs
- Decision Support Systems for RESSs
- Renewable Energy Research and Applications for Industries
- RESSs for Electrical Vehicles and Components
- Artificial Intelligence and Machine Learning Studies for RESSs and Applications
- Computational Methods for RESSs
- Energy Savings for Vehicular Technology, Power Electronics, Electric Machinery and Control, etc.
- New Approaches in Lightings
- Public Awareness and Education for Renewable Energy and Systems
- Reliability and Maintenance in RESSs

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- Smart grids and RESSs
- Safety and Security of RESSs
- Renewable Energy Systems in Smart Cities
- Future Challenges and Directions for RESSs

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Professor İlhami Colak was born in 1962 in Turkey. He received his diploma in Electrical Engineering from Gazi University, Turkey in 1985. Then he did his MSc in Electrical Engineering in the field of Speed Control of Wound Rotor Induction Machines Using Semiconductor Devices at Gazi University in 1991. After that, he received his MPhil at Birmingham University in England by preparing a thesis on High Frequency Resonant DC Link Inverters in 1991. Finally,

he got his PhD at Aston University in England on Mixed Frequency Testing of Induction Machines Using Inverters in 1994. He became an assistant professor, an associate professor and a full professor in 1995, 1999 and 2005 respectively. He has published more than 260 papers on different subjects including electrical machines, drive systems, machine learning, reactive power compensation, inverter, converter, artificial neural networks, distance learning automation, and alternating energy sources. More than 144 of his papers have been cited in the SCI database of Thomson Reuters Web of Science (Clarivate Analytics). His h-index is 16. His papers have received more than 725 citations and average citation per item is 5.69. He supervised 19 MSc students and 13 PhD students. He is a member of IEEE, IES, IAS, PELS, and PES. In the last 10 years, he has concentrated his studies on renewable energy and smart grids by publishing papers in journals (www.ijrer.org; www.ijSmartGrid.org) and organizing international IEEE-sponsored conferences (www.icrera.org; www.icSmartGrid.org). He is also the Editor-in-Chief of International Engineering Technologies (<http://dergipark.ulakbim.gov.tr/ijetijesa>), and one of the editors of Journal of Power Electronics (<http://www.jpels.org>). He has one international and three national patents. He also spent around 3 years at the European Commission Research Centre (JRC) as an expert in the field of smart grids in the Netherlands. He is currently holding the positions of Vice Rector and Dean of Engineering and Architecture Faculty of Istanbul Nisantasi University.



Professor Fujio Kurokawa was born in Yamaguchi, Japan, in 1952. He received his B.S. degree in electronic engineering from the Fukuoka Institute of Technology, Fukuoka, Japan, in 1976, and the Dr.Eng. degree from Osaka Prefecture University, Sakai, Japan, in 1988. Since 2017, he has been with Nagasaki Institute of Applied Science, and is currently a professor at the Institute for Innovative Science and Technology. His research and teaching interests are in the area

of DC–DC converter, AC–AC converter, inverter and their digital control, renewable energy technologies, power electronics technologies in aerospace and automobile, switching power supply for lighting system, and so on.

He has experiences as a member of IEC (Executive Committee) of INTELEC at present, a General Chair of 1st ICRERA (International Conference on Renewable Energy Research and Applications) 2012, a General Chair of IEEE PEDS (Power Electronics and Drive Systems) 2013, General Co-Chair of IEEE PoweReng (Power Engineering, Energy and Electrical Drives) 2013, General Co-Chair of PEMC 2014, Organizing Committee Chair of IEEE INTELEC 2015, and so on.

Dr. Kurokawa is a fellow of the IEEE and the Illuminating Engineering Institute of Japan. He is also a senior member the Institute of Electronics, Information and Communication Engineers of Japan, and the Institute of Electrical Engineers of Japan.



Professor Nagi Fahmi is a senior lecturer, program director, and a member of the Power Engineering System Group at Aston University, Birmingham, United Kingdom. He has been a member of the Institution of Engineering & Technology and Chartered Engineering since 1993. His research focus span widely on areas such as power system analysis, power system control, development in power system analysis, protection and active and reactive power flow control, stability

of interconnected network and islanded systems, development in microcontrollers and embedded systems for process control, machines and electronic drives, sensors for medical applications, active research in “technologies supporting healthy aging,” decentralization of power system voltage control using artificial neural networks, development in smart grid systems and HVDC links, research in microprocessor-based bus bar protection relay, applications of artificial neural networks to power systems transient energy margin evaluation and renewable and low-carbon electricity generation. He published extensively in these areas. He is currently supervises a number of PHD research studies in smart grid, cables (DC) and system asset management of networks lines and cables.

**Professor Ramazan Bayindir**

completed his undergraduate studies at Gazi University, Electrical Education Department in 1992 and received his M.Sc. and Ph.D. degrees from the Institute of Science & Technology, Gazi University in 1998 and in 2002, respectively. Dr. Ramazan Bayindir worked as a research assistant and as an assistant professor in the Electrical Education Department at Gazi University. He became an associate professor of the Electrical and

Electronics Engineering Department at Gazi University. Currently, he is working as a professor at the same department. His field of expertise include renewable energy sources, microgrids, distributed generation, smart grid applications, and industrial automation with programmable logic controller (PLC).

He has been a program chair of the annual conference of the International Conference on Renewable Energy Research and Applications (ICRERA), 16th International Power Electronics and Motion Control Conference and Exposition (PEMC 2014) and International Conference on Power Engineering, Energy and Electrical Drives, (POWERENG 2013) conference.

He served as a guest editor for some SCI-indexed reputable journals. He also served as a reviewer for many highly ranked scientific journals. Currently he is the editor of Journal of Science and Technology: PART C. He has published journal and conference papers on renewable energy sources, microgrids, distributed generation, smart grid applications and industrial automation. The total citations of his publications is 175 and h index is given as 9 for these publications in WEB of Science. Some international (EU) projects are 2007 and 2013 Transfer of Innovation and Partnership Project Programs.

He has some key qualifications such as education and curriculum design and development on different fields, vocational and technical education, designing, organization and planning the international level projects, educational and vocational training material development. He is member of IEEE.