Guest Editorial
Introduction to the Special Issue on Advances in Condition Monitoring and Assessment of Power Equipment

POWER apparatus, such as power and instrument transformers, circuit breakers, reclosers, switches, arresters, reactors, gas insulated equipment, capacitors, power electronics converters, relays, FACTS, insulators, etc. are the vital organs of the electric power system. Their health is paramount for a dependable delivery of power to the consumers. For optimal reliability, maladies in power equipment should be detected and cured before failures occur. Ideally, the life of a piece of equipment should be extended for as long as it can operate economically and be replaced only the day before it would fail otherwise. Just like the human body, periodic health monitoring of each component is necessary to assess the overall fitness and wellbeing of the power system. The Special Issue on Advances in Condition Monitoring and Assessment of Power Equipment of the IEEE TRANSACTIONS ON POWER DELIVERY concentrates a number of new techniques aimed to maximize equipment utilization and life expectancy in one publication.

This special issue attracted substantial interest from the PES community. We received 211 papers. A total of 63 valuable papers were accepted for publication, which is just under 30% acceptance rate. Three pieces of equipment received the most attention: transformers; cables; and circuit breakers, but several papers treat gas insulated equipment (lines, cables, circuit breakers, and substations). Attention was also given to fault detection inside equipment and fault location in transmission and distribution systems. Equipment failure rates and corrosion papers are also published. Much interest is given to equipment diagnosis and failure prediction, but we also have interesting papers on dynamic rating of equipment. Novel methods based on acoustics, optics, data analysis, signal processing, and other techniques are proposed. In my opinion the papers well represent the vast expanse of the field.

I would like to thank the Editor-in-Chief of the IEEE TRANSACTIONS ON POWER DELIVERY, Prof. Wilsun Xu from the University of Alberta, for trusting me in putting together this special issue and his advice throughout the entire process. I am grateful to the team of editors who helped me with this endeavor:

Gary Chang, National Chung Cheng University, Taiwan
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I am also very appreciative to the large number of Reviewers who performed the lion’s share of the paper evaluation to make this publication a reality. Last, but not least, I am obliged to the authors for their intellectual contributions and impressive amount of work in preparing and revising the papers to make this publication a success.

Looking into the future, I foresee that some of the methods, devices, and techniques published in this Special Issue will find applications in improving the reliability of the system by the early detecting equipment failures, estimating the remaining life, and providing more information on the health status of power apparatuses.

FRANCISCO DE LEÓN, Guest Editor-in-Chief
Department of Electrical and Computer Engineering
New York University
Brooklyn, NY 11201 USA
fdeleon@nyu.edu

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Francisco de León (S’86–M’92–SM’02–F’15) received the B.Sc. and M.Sc. (Hons.) degrees from National Polytechnic Institute, Mexico City, Mexico, in 1983 and 1986, respectively, and the Ph.D. degree from the University of Toronto, Toronto, ON, Canada, in 1992, all in electrical engineering.

He has held several academic positions in Mexico and has worked for the Canadian electric industry. He is currently a Professor with the Department of Electrical and Computer Engineering, New York University, Brooklyn, NY, USA. His research interests include analysis of power phenomena under nonsinusoidal conditions, transient and steady-state analyses of power systems, thermal rating of cables and transformers, and calculation of electromagnetic fields applied to machine design and modeling.

Prof. de León is an Associate Editor for the IEEE TRANSACTIONS ON POWER DELIVERY, an Editor/Coordinator for the IEEE POWER ENGINEERING LETTERS, and a Reviewer for a large number of journals.