Signal Processing of Power Quality Disturbances
Math H. J. Bollen, Irene Y. H. Gu


DESCRIPTION

Bridging the gap between power quality and signal processing

This innovative new text brings together two leading experts, one from signal processing and the other from power quality. Combining their fields of expertise, they set forth and investigate various types of power quality disturbances, how measurements of these disturbances are processed and interpreted, and, finally, the use and interpretation of power quality standards documents.

As a practical aid to readers, the authors make a clear distinction between two types of power quality disturbances:

* Variations: disturbances that are continuously present
* Events: disturbances that occur occasionally

A complete analysis and full set of tools are provided for each type of disturbance:

* Detailed examination of the origin of the disturbance
* Signal processing measurement techniques, including advanced techniques and those techniques set forth in standards documents
* Interpretation and analysis of measurement data
* Methods for further processing the features extracted from the signal processing into site and system indices
The depth of coverage is outstanding: the authors present and analyze material that is not covered in the standards nor found in the scientific literature.

This text is intended for two groups of readers: students and researchers in power engineering who need to use signal processing techniques for power system applications, and students and researchers in signal processing who need to perform power system disturbance analyses and diagnostics. It is also highly recommended for any engineer or utility professional involved in power quality monitoring.

ABOUT THE AUTHOR

Math H.J. Bollen grew up in Geulle, The Netherlands, and received the PhD degree in 1989. Currently, he is manager of EMC and Power Quality at STRI, Ludvika, Sweden, and a guest professor at Luleå University of Technology. Math is known for his contributions to power quality analysis through numerous papers, working-group activities, and an earlier textbook, Understanding Power Quality Problems: Voltage Sags and Interruptions, (Wiley-IEEE Press). In 2005, he became an IEEE Fellow for his contributions to methods for reliability and power quality analysis.

Irene Y.H. Gu grew up in Shanghai, China. She moved to The Netherlands in 1988 and received the PhD degree in 1992. Since 1996 she has been with the Department of Signals and Systems, Chalmers University of Technology (Gothenburg, Sweden) and has been a professor in signal processing there since 2004. She is also a guest professor at Shanghai Jiao Tong University (China). Irene Gu and Math Bollen were married in Eindhoven in 1992.

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