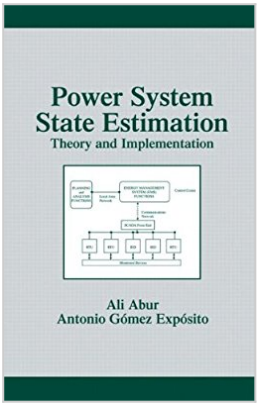

Power System State Estimation: Theory and Implementation (Power Engineering (Willis))

By Ali Abur, Antonio Gómez Expósito

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Offering an up-to-date account of the strategies utilized in state estimation of electric power systems, this text provides a broad overview of power system operation and the role of state estimation in overall energy management. It uses an abundance of examples, models, tables, and guidelines to clearly examine new aspects of state estimation, the testing of network observability, and methods to assure computational efficiency.

Includes numerous tutorial examples that fully analyze problems posed by the inclusion of current measurements in existing state estimators and illustrate practical solutions to these challenges.

Written by two expert researchers in the field, Power System State Estimation extensively details topics never before covered in depth in any other text, including novel robust state estimation methods, estimation of parameter and topology errors, and the use of ampere measurements for state estimation. It introduces various methods and computational issues involved in the formulation and implementation of the weighted least squares (WLS) approach, presents statistical tests for the detection and identification of bad data in system measurements, and reveals alternative topological and numerical formulations for the network observability problem.

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Editorial Review

Review
This is a comprehensive book on state estimation intended for students and practitioners in power engineering. It is also of high interest for applied mathematicians working in statistics and operations research. Easy-to-read and enjoyable… the book is well structured and most theoretical developments are illustrated with insightful examples, State-of-the-art developments as well as historical references are provided. Certainly, this book constitutes a fundamental addition to the state estimation literature by two well-known experts on the subject.
- IEEE Power & Energy Magazine, Vol. 3, No. 2, March/April 2005

…brings a fresh perspective to the problem of state estimation…offers a blend of theory and mathematical rigor that is unique and very exciting.

-- Fernando L. Alvarado, The University of Wisconsin, Madison, Wisconsin, USA

Throughout the book, the principles being explained are illustrated with exceptionally clear line drawings, appropriate mathematical formulations and with a large number of excellent scanning electron micrographs. …The book provides an excellent reference for materials engineers and designers who may be confronted with wear problems in design. It would also serve as a graduate or senior-level text in a materials science course on wear.
-Richard D. Waltein, P.E., JOM On-Line, Jan. 2006

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