CIRCUIT ANALYSIS and FEEDBACK AMPLIFIER THEORY

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Edited by
Wai-Kai Chen
University of Illinois
Chicago, U.S.A.

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Preface

The purpose of Circuit Analysis and Feedback Amplifier Theory is to provide in a single volume a comprehensive reference work covering the broad spectrum of linear circuit analysis and feedback amplifier design. It also includes the design of multiple-loop feedback amplifiers. The book is written and developed for the practicing electrical engineers in industry, government, and academia. The goal is to provide the most up-to-date information in the field.

Over the years, the fundamentals of the field have evolved to include a wide range of topics and a broad range of practice. To encompass such a wide range of knowledge, the book focuses on the key concepts, models, and equations that enable the design engineer to analyze, design and predict the behavior of large-scale circuits and feedback amplifiers. While design formulas and tables are listed, emphasis is placed on the key concepts and theories underlying the processes.

The book stresses fundamental theory behind professional applications. In order to do so, it is reinforced with frequent examples. Extensive development of theory and details of proofs have been omitted. The reader is assumed to have a certain degree of sophistication and experience. However, brief reviews of theories, principles and mathematics of some subject areas are given. These reviews have been done concisely with perception.

The compilation of this book would not have been possible without the dedication and efforts of Professor Larry P. Huelsman, and most of all the contributing authors. I wish to thank them all.

Wai-Kai Chen
Editor-in-Chief

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Wai-Kai Chen, Professor and Head Emeritus of the Department of Electrical Engineering and Computer Science at the University of Illinois at Chicago, is now serving as Academic Vice President at International Technological University. He received his B.S. and M.S. degrees in electrical engineering at Ohio University, where he was later recognized as a Distinguished Professor. He earned his Ph.D. in electrical engineering at the University of Illinois at Urbana/Champaign.

Professor Chen has extensive experience in education and industry and is very active professionally in the fields of circuits and systems. He has served as visiting professor at Purdue University, University of Hawaii at Manoa, and Chuo University in Tokyo, Japan. He was Editor of the *IEEE Transactions on Circuits and Systems*, *Series I and II*, President of the IEEE Circuits and Systems Society, and is the Founding Editor and Editor-in-Chief of the *Journal of Circuits, Systems and Computers*. He received the Lester R. Ford Award from the Mathematical Association of America, the Alexander von Humboldt Award from Germany, the JSPS Fellowship Award from Japan Society for the Promotion of Science, the Ohio University Alumni Medal of Merit for Distinguished Achievement in Engineering Education, the Senior University Scholar Award and the 2000 Faculty Research Award from the University of Illinois at Chicago, and the Distinguished Alumnus Award from the University of Illinois at Urbana/Champaign. He is the recipient of the Golden Jubilee Medal, the Education Award, the Meritorious Service Award from IEEE Circuits and Systems Society, and the Third Millennium Medal from the IEEE. He has also received more than a dozen honorary professorship awards from major institutions in China.

A fellow of the Institute of Electrical and Electronics Engineers and the American Association for the Advancement of Science, Professor Chen is widely known in the profession for his *Applied Graph Theory* (North-Holland), *Theory and Design of Broadband Matching Networks* (Pergamon Press), *Active Network and Feedback Amplifier Theory* (McGraw-Hill), *Linear Networks and Systems* (Brooks/Cole), *Passive and Active Filters: Theory and Implements* (John Wiley), *Theory of Nets: Flows in Networks* (Wiley-Interscience), and *The VLSI Handbook* (CRC Press).

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