# VOLUME XI – TABLE OF CONTENTS

## Foreword

## About the book

## 1. Advanced Soft-Switching Techniques for Converters and Inverters


2. Three-Phase Power Factor Correction Rectifiers


2.2 "Characterization and Control of Three-Phase Boost Rectifiers at Light Load," Qihong Huang and Fred C. Lee, *VPEC Seminar*, September 1996 .................................................................


2.10 "A New Quasi-Single-Stage Isolated Three-Phase ZVZCS Buck PWM Rectifier," K. Wang, Fred C. Lee, Xinxiang Yan and Dushan Boroyevich, *Power Electronics Specialist Conference*, June 1996 ...


3. Motor Drive and Electric Vehicle Systems


3.6 “Efficiency Considerations of Load Side Soft-Switching Inverters for Electric Vehicle Applications,” Wei Dong, Jae-Young Choi, Yong Li, Huijie Yu, Jason Lai, Dushan Boroyevich, and Fred C. Lee, *CPES Seminar*, September 1999 ………………………………


3.8 “Evaluation of a Cool MOS and IGBTs for 30kW (PNGV) Inverter for Hybrid Electric Vehicle Applications,” Xiukuan Jing and Dushan Boroyevich, *CPES Seminar*, September 1999 ……………


4 Advanced Power Electronics Semiconductor Devices


4.8 "MOS Controlled Diodes-A New Class of Fast Switching, Low Loss Power Diodes,” Qin Huang
4.9 “Experimental Demonstration of a MOS Controlled Diode,” Z. Xu, Bo Zhang and Alex Q. Huang, 17th Annual Power Electronics Seminar, September 1999 ……………………………

4.10 “Analysis of the Inductive Turn-off of Double Gate MOS Controlled Thyristors,” Alex Q. Huang, IEEE Transactions on Electron Device, Vol. 43, No. 6, June 1996 ……………………………

4.11 “Analysis of 4.5 KV Double Trench Gate MOS Controlled Thyristor,” Alex Q. Huang, Gehan Amaratunga and Dan Y. Chen, Proceedings of the 7th International Symposium on Power Semiconductor Devices and ICs, 1995 ………………………………………


4.13 "Numerical Study of Dual MOS Gate Thyristors,” Budong You and Alex Q. Huang, VPEC Seminar, September 1998 ………………………………………

4.14 "Buried Oxide Emitter Controlled Thyristor – A New MOS-Gated Thyristor with Excellent High-Voltage Current Saturation Capability,” Bo Zhang and Alex Q. Huang, VPEC Seminar, September 1998 ………………………………………

4.15 "Dual Gate Emitter Controlled Thyristor,” Bo Zhang and Alex Q. Huang, VPEC Seminar, September 1998 ………………………………………

4.16 "Introducing the Emitter Turn-off Thyristor," Yuxin Li, Alex Huang and Fred C. Lee, Conference Record of IEEE Industry Applications Conference, 1998 ………………………………………

4.17 “Comparison of the state-of-the-art high power IGBTs, GCTs and ETOs,” Kevin Motto, Yuxin Li and Alex Q. Huang, 17th Annual Power Electronics Seminar at Virginia Tech, September 1999 ………

4.18 “The Emitter Turn-off Thyristor (ETO) based high voltage, high frequency converter system,” K. Motto, Yuxin Li and Alex Q. Huang, 17th Annual Power Electronics Seminar at Virginia Tech, September 1999 ………………………………………


4.20 “MTO Thyristor: An efficient replacement of the GTO,” Alex Q. Huang, IEEE Industry Application Society Conference, 1999 ………………………………………

4.21 “A physics-based PIN diode model for circuit applications," Yumin Bai and Alex Q. Huang, 17th Annual Power Electronics Seminar at Virginia Tech, September 1999 ………………………………………

4.22 “Feasibility of a 1-kW, 100-kHz, monolithically integrated power electronics module,” Xuening Li and Alex Q. Huang, 17th Annual Power Electronics Seminar at Virginia Tech, September 1999 ………

4.23 “A Novel High Voltage SOI Structure,” Xuening Li and Alex Q. Huang, IEEE Bipolar/BeCMOS Circuits and Technologies Meeting, September 1999 ………………………………………