Record Nr. UNINA9910450666403321 SiC materials and devices [[electronic resource] /] / edited by Michael **Titolo** Shur, Sergey Rumyantsev, Michael Levinshtein Pubbl/distr/stampa New Jersey;; London,: World Scientific, 2007 **ISBN** 1-281-12124-X 9786611121242 981-270-685-2 Descrizione fisica 1 online resource (143 p.) Collana Selected topics in electronics and systems;; 43 SiC materials and devices;;2 Altri autori (Persone) ShurMichael RumyantsevSergey L LevinshteinM. E (Mikhail Efimovich) Disciplina 621.38152 Soggetti Silicon carbide - Electric properties Semiconductors Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references. Nota di contenuto Preface; CONTENTS; Growth of Sic Substrates A. Powell, J. Jenny, S. Muller, H. Mcd. Hobgood, V. Tsvetkov, R. Lenoard and C. Carter, Jr.; 1. Introduction; 2. Sic Bulk Growth; 3. Crystal Orientation; 4. Crystal Diameter Enlargement; 5. Substrate Defects; 6. Doping in SIC; 7. Sic Substrates for Microwave Devices; 8. Wafering and Polish; 9. Substrate Cost; 10. Conclusions; Acknowledgments; References; Deep Level Defects in Silicon Carbide A. A. Lebedev: 1. Introduction: 2. Parameters of Deep Centers in Sic; 3. Influence of Impurities on the Growth of **Epitaxial Sic Layers** 4. Deep Centers and Recombination Processes in Sic5. Conclusion; Acknowledgements; References; Silicon Carbide Junction Field Effect Transistors D. Stephani and P. Friedrichs; 1. Introduction; 2. Lateral SiC-JFETs; 3. The Vertical JFET (VJFET); References; Sic BJTs T. P. Chow and A. K. Agarwal; 1. Introduction; 2, Figures of Merit; 3. Power Bipolar Transistors: 4. Commercialization Challenges: References

Silicon carbide is known to have been investigated since 1907 when

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Captain H J Round demonstrated yellow and blue emission by applying bias between a metal needle and an SiC crystal. The potential of using SiC in semiconductor electronics was already recognized half a century ago. Despite its well-known properties, it has taken a few decades to overcome the exceptional technological difficulties of getting silicon carbide material to reach device quality and travel the road from basic research to commercialization. This second of two volumes reviews four important additional areas: the growth