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# Silicon Carbide and Semiconductors Processing



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# Welcome

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On the occasion of the 2023 meetings of the International Conference on Silicon Carbide and Related Materials (ICSCRM) and the International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), Trans Tech Publications (TTP) as one of their official publishers is glad to present this catalogue to combine all the ICSCRM and UCPSS proceedings and related topic books available in our Scientific.Net database in one collection so that you can have the takeaway from all these meetings in one catalogue.

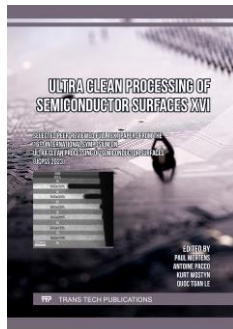
The conferences are the world-class forums in their fields for decades having provided the opportunity to the scientists and researches from all over the world to present and exchange the state-of-the art works dedicated to the conferences' subject.

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*Anne-Kristin Wohlbier,*  
CEO





### Ultra Clean Processing of Semiconductor Surfaces XVI

#### Selected peer-reviewed full text papers from the 16th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS 2023), September 12-14, 2023, Brugge, Belgium

Edited by: Dr. Paul Mertens, Antoine Pacco, Kurt Wostyn and Quoc Toan Le

This proceedings volume contains the proceedings of all presentations of the 16th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS) 2023. The subject matter of the UCPSS symposium is ultra-clean processing, isotropic selective etching and surface preparation technology in all steps of the fabrication of micro- and nano-electronic integrated circuits. This volume describes the recent progress in the field of ultra clean surfaces, surface cleaning and preparation for the production of micro- and nano-electronic integrated circuits and related subjects. This involves a wide variety of surfaces of mixed composition and with nano-topography. The goal of the processes is to obtain nano precise etching and cleaning resulting in ultra clean surfaces with a very high degree of perfection, i.e. with minimal amounts of residues or defects. This comprises different surface and cleaning steps throughout the entire device manufacturing process.

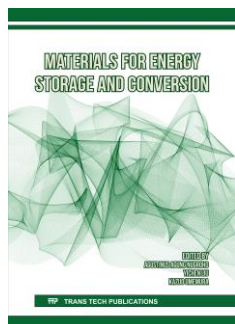
#### Special Topic

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Cleaning, Contaminations, Defects, Dielectrics, Etching, Gallium Nitride, Germanium, Integrated Circuit, Interconnects, Molecular Dynamic Simulation, Nanopillars, Pattern Collapse, Semiconductor, Semiconductor Manufacturing, Silicon, Surface Chemistry, Sustainability, Wafer

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### Materials for Energy Storage and Conversion

#### Special topic volume with invited peer-reviewed papers only

Edited by: Prof. Agustinus Agung Nugroho, Yichen Liu and Prof. Kazuo Umemura

This special edition contains articles on the latest research results on materials properties used in devices for energy storage and energy conversion and for power electronics production. Without any doubt, this specialised publication will be useful to professionals in the field of design and production of the aforementioned devices.

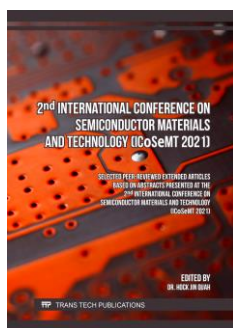
#### Special Topic

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Composite, Dye-Sensitized Solar Cell, Electrochemical Cell, Electrode Material, Electrolyte, Lithium-Ion Battery, MOSFET, Photoanode, Photoelectrochemical Cell, Polymer, Power Semiconductor, Short-Circuit, Silicon Carbide, Solar Cell, Supercapacitor

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### 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021)

#### Aggregated Book

Edited by: Dr. Hock Jin Quah

This book consists of the selected articles by authors who participated in the 2nd International Conference on Semiconductor Materials and Technology (ICoSeMT 2021, 8-9 November 2021, Malaysia), which ensured that all manuscripts underwent a peer review process. This conference edition aimed to provide insight into the recent advancement and development in the area of optical and electronic materials, optoelectronics and electronics devices, organic and polymeric materials, and packaging technology. The structural, optical, chemical, electrical, and sensing characteristics of various types of semiconductor materials in the form of thin films and nanostructures have been reported in this book. Simulation and experimental studies regarding metal-oxide-semiconductor-based devices, high electron mobility transistors, and other devices are also presented.

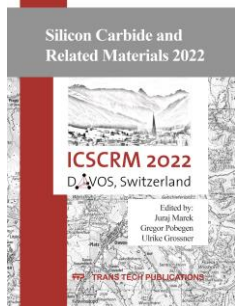
#### Aggregated Book

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Composite, Dielectric Properties, Electrical Properties, Etching, Graphene, Microwave Absorption, MOSFET, Nanocatalyst, Nanocomposite, Nanomaterials, Nanoparticle, Optical Properties, Packaging, Polymer, Quantum Dots, Semiconductor, Sensor, Thin Film

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### International Conference on Silicon Carbide and Related Materials ICSCRM 2022

#### Aggregated Book


Edited by: Juraj Marek, Gregor Pobegen and Ulrike Grossner

The International Conference on Silicon Carbide and Related Materials (ICSCRM) is the most important technical conference series on silicon carbide (SiC) and related materials. Started in Washington, D.C. in 1987, the conference series developed into a bi-annual global forum on SiC from its crystal growth to the reliability in application. After five conferences in the U.S., ICSCRM has been held every two years, alternating between USA, Europe, and Japan. The last three Conferences were held in Giardini Naxos, Italy (2015), Washington, D.C., USA (2017), and Kyoto, Japan (2019). Due to the pandemic situation in 2020 and 2021, the alternating European edition, the 13th ECSCRM, has been held in 2021, and the 19th ICSCRM has been postponed to 2022. The 19th edition of ICSCRM will be the last of its kind – starting in 2023, the conference series will be united with the European edition. It will form an annual event under the well-established name ICSCRM and a new rotation schedule integrating the SiC communities worldwide.

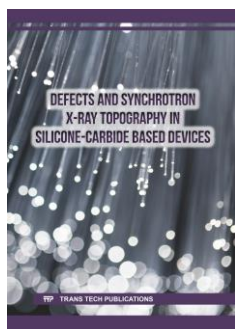
#### Aggregated Book

**Topics:** Materials Science

**Keywords:** Basal Plane Dislocation, Chemical Vapor Deposition, Crystal, Defect Inspection, Diode, Dislocation, Doping, Electrical Properties, Epitaxial Growth, Etching, High Power Device, Implantation, Integrated Circuit, JFET, Laser Annealing, MOSFET, Passivation, Point Defect, Reliability, Schottky Diode, Silicon Carbide, Star-Defect, Substrate, Thin Film, Wafer

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 eBook Multi-User: eBook: 836 pages, 2023

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### Defects and Synchrotron X-Ray Topography in Silicone-Carbide Based Devices

#### Special topic volume with invited peer-reviewed papers only

Edited by: Juraj Marek, Gregor Pobegen and Ulrike Grossner

The presented special edition is devoted to the latest research in semiconductor materials and devices on silicon carbide and the design and research of machines and equipment. This issue will be helpful to specialists engaged in the design and production of power electronics and to mechanical engineers.

#### Special Topic

**Topics:** Electronics, Materials Science, Mechanical Engineering, Mechanics, Nanoscience

**Keywords:** Aircraft Fuel Dump, Crystal Structure, Crystalline Defect, Defect Inspection, Dislocations, Epilayer, Friction Stir Welding, Heat Transfer, Landfill Gas, Mass Transfer, Point Defects, Polymer, Semiconductor, Silicon Carbide, Spark Ignition Engine, Surface Defects, Synchrotron X-Ray Topography, Wafer

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### Engineering Materials, Devices and Equipments

#### Special topic volume with invited peer-reviewed papers only

Edited by: Dr. Faisal Mahmuddin, Juraj Marek, Gregor Pobegen and Ulrike Grossner

This special edition contains a collection of articles on research results in areas of structural metal materials, materials and semiconductor devices for applications in photovoltaic systems and electronic devices based on silicon carbide, and also in the area of building materials. The special edition will be helpful to many specialists whose activity is related to machinery and construction, solar cell production and the electronic industry.

#### Special Topic

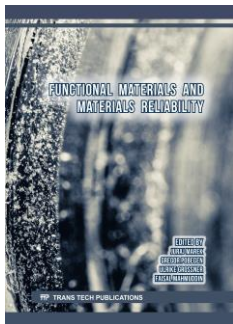
**Topics:** Building Materials, Electronics, Materials Science, Nanoscience

**Keywords:** Alloy, Bamboo Structure, Cement, Chemical Etching, Concrete, Diode, Electrical Properties, Field Effect Transistor, Frozen Soil, Hardening, Heat Treatment, Integrated Circuit, Junction Field Effect Transistor, Mechanical Properties, Metal-Organic Chemical Vapor Deposition, Microwave Plasma Coating, MOSFET, Nanocomposites, Plasticiser, Power Electronic Device, Semiconductor, Shaping, Silicon Carbide, Solar Cell, Steel, Thin Film, Wafer Doping, Welding

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### Functional Materials and Materials Reliability

#### Special topic volume with invited peer-reviewed papers only

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner and Dr. Faisal Mahmuddin

This special issue presents the research results and engineering developments in the area of silicon carbide semiconductor materials for power electronics and the latest composite and polymer materials for machinery and textile production. The special edition will be useful to engineers whose activity is related to research and developments in the area of power electronics and modern composite and polymer materials.

#### Special Topic

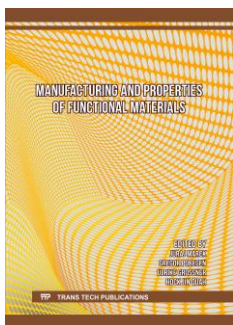
**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Aluminum Foam, Composite, Mechanical Properties, Metal Oxide Semiconductor, MOSFET, Nanotube, Polymer, Reliability, Silicon Carbide, Textile Materials

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 220 pages, 2023

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### Manufacturing and Properties of Functional Materials

#### Special topic volume with invited peer-reviewed papers only

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner and Dr. Hock Jin Quah

The special edition includes articles that represented the latest research results and engineering solutions in the area of silicon carbide wafer manufacturing for power electronics, functional polymer and composite materials for various applications and special microwave absorption materials for defence from electromagnetic radiation. This special edition will be interesting to semiconductor power device production specialists and many branches of applied materials science.

#### Special Topic

**Topics:** Building Materials, Electronics, Materials Science, Nanoscience

**Keywords:** Carbon Biomass, Carbon Nanotube, Composite, Crystal Growth, Defect, Doping, Etching, Geopolymer, Laser Annealing, Laser Micro-Punching, Microwave Absorption, Physical Vapor Deposition, Polymer, Silicon Carbide, Wafer

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### Technologies and Application of Engineering Materials

#### Special topic volume with invited peer-reviewed papers only

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner and Dr. Faisal Mahmuddin

This special issue includes articles devoted to the results of research and engineering developments in the area of silicon carbide semiconductor materials for power electronics and the latest materials for the construction sector. The special edition will be useful to engineers whose activity is related to research and development of power electronic devices and modern construction materials.

#### Special Topic

**Topics:** Building Materials, Construction, Electronics, Materials Science, Nanoscience

**Keywords:** Aggregate Material, Beams, Bipolar Operation, Concrete, Diode, Electrical Properties, Gate Voltage, Geopolymer, Interface Defect, Mechanical Properties, Mortar, MOSFET, Reinforcing, Semiconductor, Silicon Carbide, Sound Absorption, Switching Characteristics

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### Engineering Materials: Research and Application Optimization

#### Special topic volume with invited peer-reviewed papers only

Edited by: Dr. Hock Jin Quah, Juraj Marek, Gregor Pobegen, Ulrike Grossner, Prof. Steven Y. Liang and Prof. Zongjin Li

This special edition contains a series of articles on research results in areas of materials for applications in opto- and microelectronics and power electronic devices based on silicon carbide. A part of the edition is devoted to properties investigation of green building materials with the use of some waste materials as replacements for conventional components. The issue will be helpful to many specialists whose activity is related to the electronic industry and green construction.

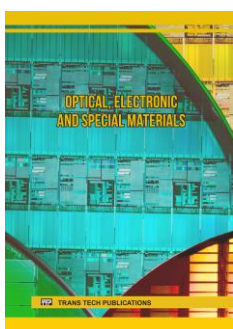
#### Special Topic

**Topics:** Building Materials, Electronics, Materials Science, Nanoscience

**Keywords:** Aluminum Slag, Bitumen Binder, Chemical Etching, Diode, Electrical Properties, Ferrous Foundry Sand, Field Effect Transistor, Geopolymer, Green Building Materials, Light Absorption, Metal-Organic Chemical Vapor Deposition, MOSFET, Nanocomposites, Optical Properties, Power Electronic Device, Semiconductor, Silicon Carbide, Thin Film, Wafer Doping, Waste Tyres

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### Optical, Electronic and Special Materials

#### Special topic volume with invited peer-reviewed papers only

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner, Dr. Hock Jin Quah and Dr. Azher M. Abed

The presented special issue is devoted to the latest research in materials science and chemical technologies of materials synthesis and processing. This edition will be helpful to specialists engaged in optoelectronics, electronics and to chemical engineers whose activity is related to alternative energy generation and environmental protection.

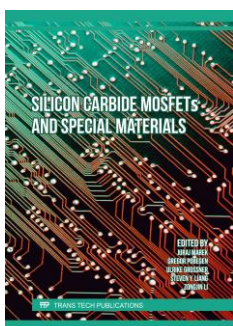
#### Special Topic

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Activated Carbon, Crystal Structure, Crystalline Defect, Defect Inspection, Dislocations, Epilayer, Fuel Cell, Metal-Organic Chemical Vapor Deposition, Microbial Fuel Cell, Optical Properties, Photoluminescence, Point Defects, Polymer Electrolyte Membrane, Quantum Dots, Semiconductor, Silicon Carbide, Surface Defects, Thin Film, Wafer, Waste Conversion

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### Silicon Carbide MOSFETs and Special Materials

#### Special topic volume with invited peer-reviewed papers only

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner, Prof. Steven Y. Liang and Prof. Zongjin Li

This special issue includes results of research and engineering developments in the area of applied materials and technologies for machinery, biomedical application, additive production and power electronics. The special edition will be useful to engineers whose activity is related to the research and development of composite materials, biomaterials and the production of power electronic devices.

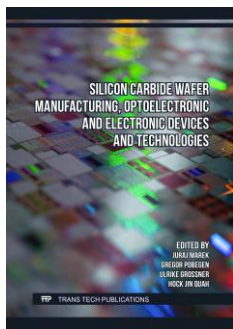
#### Special Topic

**Topics:** Bioscience and Medicine, Materials Science, Nanoscience

**Keywords:** 3D Printing, Bioceramics, Composite, Doping, Electrical Properties, Epitaxial Growth, Interface Defect, Liquid Crystal, Mechanical Properties, Nanomaterials, Nanoparticles, Polymer, Semiconductor, Silicon Carbide, Surface, Thin Film, Wafer

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**Silicon Carbide Wafer Manufacturing, Optoelectronic and Electronic Devices and Technologies**

**Special topic volume with invited peer-reviewed papers only**

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner and Dr. Hock Jin Quah

The special edition includes articles that represented the latest research results and engineering solutions in the area of electronic device design and production. This special edition will be interesting to specialists in semiconductor power device production, microelectronics and optoelectronics.

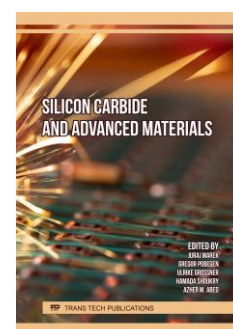
**Special Topic**

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Chemical Mechanical Polishing, Crystal Growth, Defect, Doping, Electronic Packaging, Epitaxial Growth, Etching, Integrated Circuits, Interconnector, Interfacial Delamination, Ion Implantation, Metal Oxide Semiconductor, Optoelectronics, Physical Vapor Deposition, Quantum Well, Sensor, Silicon Carbide, Surface Damage, Wafer, Wire Bonding

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**Silicon Carbide and Advanced Materials**

**Special topic volume with invited peer-reviewed papers only**

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner, Hamada Shoukry and Dr. Azher M. Abed

This special edition includes articles that reflected the results of the latest research in semiconductors for power electronics, special steel coatings, properties of shape memory alloys and building materials such as cement, concrete and materials for intumescent coatings of structural steel for fire protection. This special edition will be helpful to specialists in the electronics industry and materials science in particular in the area of building materials.

**Special Topic**

**Topics:** Building Materials, Electronics, Materials Science, Nanoscience

**Keywords:** Cement, Concrete, Crystal, Doping, Electrical Properties, Epitaxial Growth, Mechanical Properties, Nanomaterials, Semiconductor, Shape Memory Alloy, Silicate Paint, Silicon Carbide, Steel, Surface, Thin Film, Wafer

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**Advanced Engineering Materials: Properties and Processing Technologies**

**Special topic volume with invited peer-reviewed papers only**

Edited by: Dr. Hock Jin Quah, Juraj Marek, Gregor Pobegen, Ulrike Grossner, Prof. Steven Y. Liang and Prof. Zongjin Li

This special edition contains a series of articles on research results in areas of structural metal materials, and materials for applications in opto- and microelectronics and power electronic devices based on silicon carbide. The presented edition will be helpful to many specialists whose activity is related to machinery and the electronic industry.

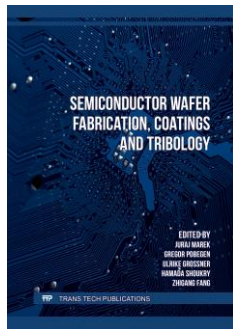
**Special Topic**

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Alloy, Chemical Etching, Die Casting, Die Forged, Diode, Field Effect Transistor, Friction Stir Welding, MOSFET, Nanocomposites, Optical Properties, Silicon Carbide, Single Point Incremental Forming, Steel, Thin Film, Wafer Doping

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### Semiconductor Wafer Fabrication, Coatings and Tribology

#### Special topic volume with invited peer-reviewed papers only

Edited by: Juraj Marek, Gregor Pobegen, Ulrike Grossner, Hamada Shoukry and Dr. Zhigang Fang

The special edition includes articles that represented the latest research results and engineering solutions in the synthesis of nanomaterials, analysis processes of semiconductor wafer fabrication, and some decisions on coatings and exploration of tribological performance of several polymer and composite materials. This special edition will be interesting to specialists in nanomaterials synthesis, semiconductor power device production and protective coatings in machinery.

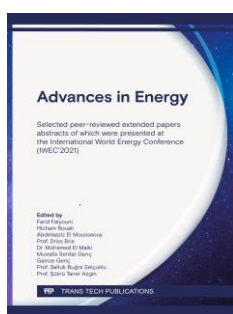
#### Special Topic

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Brush Plating, Carbon Nanotube, Chemical Vapor Deposition, Coating, Composite, Defect, Doping, Epitaxial Growth, Gallium Oxide, Green Synthesis, Laser Annealing, MOSFET, Nanomaterials, Nanoparticles, Plasma Etching, Polishing, Polymer, Silicon Carbide, Tribology, Wafer

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### Advances in Energy

#### Aggregated Book

Edited by: Prof. Farid Falyouni, Hicham Bouali, Prof. Abdelaziz El Moussaouy, Prof. Driss Bria, Dr. Mohamed El Malki, Mustafa Serdar Genç, Gamze Genç, Prof. Saltuk Buğra Selçuklu and Prof. Şükrü Taner Azgin

This International World Energy Conference was held December 03-04, 2021, in Kayseri, Turkey and is a premier venue for engaging scholars and practitioners who are passionate and well driven to make a change in transitioning the world to a sustainable energy future. It reflects the last advances in semiconductor physics that define the modern trend in developing micro-, optoelectronics, photonic devices, and photovoltaics. Analysis of the possibility of the modified clay to absorb the industrial dye and numerical simulation of direct tensile test of reinforced concrete are also presented.

This edition will be helpful to many specialists in their theoretical and experimental studies.

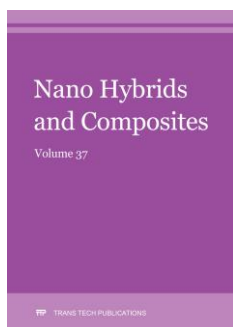
#### Aggregated Book

**Topics:** Building Materials, Materials Science, Nanoscience

**Keywords:** Acoustics, Construction, Electron Transport, Electronic Properties, First-Principles Study, Optical Properties, Photonics, Quantum Dots, Semiconductor, Solid-State Physics

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### Nano Hybrids and Composites Vol. 37

Edited by: Dr. Amir Al-Ahmed and Prof. Yun-Hae Kim

Articles collected in this issue present to readers the results of applied nano research. The various nanoparticles were studied and analysed for applications in microelectronics, sensors, biosensors, and devices for energy storage and conversion. The properties of structural nanocomposites based on graphene and nano cellulose were considered in some articles. There was also an analysis of the use of nanomaterials in archaeological object restoration. This volume will be helpful to specialists in nanomaterials and nanotechnologies applications.

#### Journal Volume

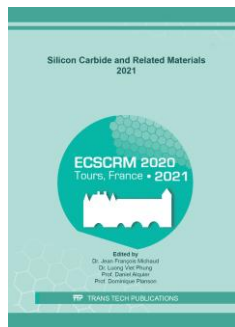
**Topics:** Building Materials, Materials Science, Nanoscience

**Keywords:** Biosensor, Electrical Properties, Graphene, Green Synthesis, Nanocomposite, Nanocrystalline Material, Nano-Lime, Nanomaterials, Nanoparticle, Polymer, Semiconductor, Sensor, Silicon Carbide, Thin Film

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### Silicon Carbide and Related Materials 2021

**Selected peer-reviewed extended papers abstracts of which were presented at the 13th European Conference on Silicon Carbide and Related Materials (ECSCRM 2020-2021), October 24-28, 2021, Tours, France**

Edited by: Dr. Jean François Michaud, Dr. Luong Viet Phung, Prof. Daniel Alquier and Prof. Dominique Planson

This edition is the collection of selected peer-reviewed extended papers abstracts of which were presented at the 13th European Conference on Silicon Carbide and Related Materials (ECSCRM 2020-2021), held in Tours, France, in October 2021. During the conference, held for the first time in hybrid mode due to the COVID-19 pandemic, researchers discussed issues in the field of wide bandgap semiconductors, focusing on silicon carbide and related materials. Presented articles cover a wide range of topics divided into four major sections: Material growth and wafer manufacturing; Characterization, modelling and defect engineering; Processing; Power devices and applications. The contributors are worldwide academics and industrialists.

#### Special Topic

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** 3C-SiC, 4H-SiC, Bulk Growth, Characterization, Chemical Vapor Deposition (CVD), Defects, Dislocation, Epitaxial Growth, Graphene, III-Nitrides, Ion Implantation, MOS, MOSFET, Oxide-Silicon Interface, Power Electronics, Processing, Semiconductor Devices, Silicon Carbide, Silicon Carbide (SiC), Silicon Carbide Polytypes, Wide Bandgap Semiconductor

Prices: Print: **US\$ 198.00/ EUR 198.00**

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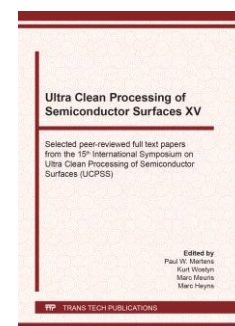
eBook Multi-User:

Print: 978-3-0357-2760-9

eBook: 978-3-0357-3824-7

728 pages, 2022

<https://www.scientific.net/978-3-0357-2760-9/book>



### Ultra Clean Processing of Semiconductor Surfaces XV

**Selected, peer-reviewed papers from the 15th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), April 12-15, 2021, Mechelen, Belgium**

Edited by: Paul W. Mertens, Kurt Wostyn, Marc Meuris and Marc Heyns

This proceedings volume describes the recent progress in the field of ultra-clean surfaces and surface cleaning and preparation for the production of micro- and nanoelectronic integrated circuits and related subjects. This involves a wide variety of surfaces of mixed composition and with nano-topography with an aspect ratio of lateral dimension/vertical dimension on the order of 1/10. The goal of the processes is to obtain nano precise etching and cleaning, resulting in ultra-clean surfaces with very few residues or defects. This comprises different surface and cleaning steps throughout the entire device manufacturing process.

#### Conference Proceedings

**Topics:** Electronics, Manufacturing, Materials Science, Nanoscience

**Keywords:** Cleaning, Etching, Integrated Circuit, Megasonic Agitation, Nanoelectronics, Semiconductor, Surface, Surface Chemistry, Surface Preparation, Surface Processing

Prices: Print: **US\$ 308.00/ EUR 308.00**

eBook Single-User: **US\$ 198.00/ EUR 198.00**

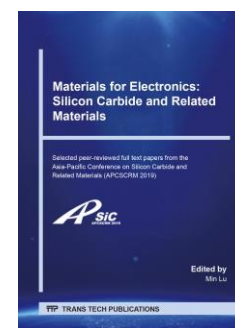
eBook Multi-User: **US\$ 347.00/ EUR 347.00**

Print: 978-3-0357-1801-0

eBook: 978-3-0357-3801-8

340 pages, 2021

<https://www.scientific.net/978-3-0357-1801-0/book>



### Materials for Electronics: Silicon Carbide and Related Materials

**Selected peer-reviewed papers from the Asia-Pacific Conference on Silicon Carbide and Related Materials (APSCRM 2019), July 17-20, 2019, Beijing, China**

Edited by: Min Lu

These papers were selected from materials of the Asia-Pacific Conference on Silicon Carbide and Related Materials (APSCRM 2019), July 17-20, 2019, Beijing, China. The collection introduces results of scientific and engineering researches in the area of growth, analysis of structure, and properties of wide bandgap semiconductors and of wide bandgap semiconductor devices.

#### Conference Proceedings

**Topics:** Electronics, Manufacturing, Materials Science, Nanoscience

**Keywords:** Annealing, Deposition, Diode, Epitaxial Growth, Epitaxial Layer, Heterojunction, MOSFET, Power Device, Semiconductors, Silicon Carbide (SiC), Structure, Thin Films, Wide Bandgap Semiconductors

Prices: Print: **US\$ 184.00/ EUR 184.00**

eBook Single-User: **US\$ 198.00/ EUR 198.00**

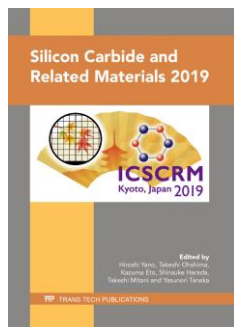
eBook Multi-User: **US\$ 347.00/ EUR 347.00**

Print: 978-3-0357-1642-9

eBook: 978-3-0357-3642-7

184 pages, 2020

<https://www.scientific.net/978-3-0357-1642-9/book>



### Silicon Carbide and Related Materials 2019

**Selected, peer-reviewed papers from the 18th International Conference on Silicon Carbide and Related Materials 2019 (ICSCRM 2019), September 29 - October 4, 2019, Kyoto, Japan**

Edited by: Hiroshi Yano, Dr. Takeshi Ohshima, Kazuma Eto, Shinsuke Harada, Takeshi Mitani and Yasunori Tanaka

This volume contains papers from the 18th International Conference on Silicon Carbide and Related Materials 2019 (ICSCRM 2019), held in Kyoto, Japan, from September 29 through October 4, 2019. The collection reflects the results of the last research efforts on properties of silicon carbide and related materials for the goal of their use in power electronics. Presented articles, cover the wide range of topics: crystal growth and wafer manufacturing, characterization and defect engineering, MOS gate stacks and device processing, power devices, and integrated circuits packaging.

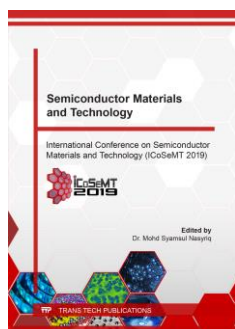
#### Conference Proceedings

**Topics:** Electronics, Manufacturing, Materials Science, Nanoscience

**Keywords:** Bipolar Devices, Characterization, Crystal Growth, Diode, Epitaxial Growth, Etching, Extended Defects, High Temperature Reliability, Integrated Circuit Packaging, Layer Growth, Measurements, Metal Oxide Semiconductor Field Effect Transistor, MOS Gate Stack, Point Defects, Quantum Technology, Schottky Barrier, Silicon Carbide, Silicon Carbide Power Devices, Thin Films, Wafer Machining

**Prices:** Print: **US\$ 550.00/ EUR 550.00** Print: 978-3-0357-1579-8  
eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3579-6  
eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1196 pages, 2020

<https://www.scientific.net/978-3-0357-1579-8/book>



### Semiconductor Materials and Technology

**Selected, peer reviewed papers from the International Conference on Semiconductor Materials and Technology (ICoSeMT 2019), 29-30 April, 2019, Penang, Malaysia**

Edited by: Dr. Mohd Syamsul Nasyriq Samsol

International Conference on Semiconductor Materials and Technology (ICoSeMT 2019, 29-30 April 2019, Penang, Malaysia) was an inaugural event organized by the Institute of Nano Optoelectronics Research and Technology (INOR) and Universiti Sains Malaysia (USM) in conjunction with the 50th Anniversary of USM. This volume presents for readers the collection of papers that were represented on this event and reflects the modern trends in the area of materials science and technologies for opto- and microelectronics, photovoltaic systems, and photocatalysis, in analyze properties of modern functional materials, polymers, and composites. This collection will be useful for specialists from many branches of modern manufacture.

#### Conference Proceedings

**Topics:** Electronics, Environmental Engineering, Manufacturing, Materials Science, Nanoscience

**Keywords:** Black Silicon, Combustion Synthesis, Composites, Cuprate Superconductor, Electrochemical Etching, Injection Currents, Lamination, Microelectronics, Morphological Structure, Nanoscale Materials, Optical Properties, Optoelectronics, Organic Polymer, Photocatalytic Degradation, Photovoltaics, Planar Devices, Porous Silicon, Semiconductors, Sensing, Solar Cells, Spin Coating, Thin Crystalline Silicon, Thin Films, Vapour Deposition

**Prices:** Print: **US\$ 253.00/ EUR 253.00** Print: 978-3-0357-1681-8  
eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3681-6  
eBook Multi-User: **US\$ 347.00/ EUR 347.00** 256 pages, 2020

<https://www.scientific.net/978-3-0357-1681-8/book>



### Silicon Carbide and Related Materials 2018

**Selected, peer reviewed papers from the European Conference on Silicon Carbide and Related Materials (ECSCRM 2018), September 2-6, 2018, Birmingham, UK**

Edited by: Peter M. Gammon, Vishal A. Shah, Richard A. McMahon, Michael R. Jennings, Oliver Vavasour, Faye Padfield and Philip A. Mawby

This volume contains selected papers from the 12th European Conference on Silicon Carbide and Related Materials (ECSCRM 2018), held in Birmingham, UK, in September 2018. Researchers discussed the latest progress in the field of silicon carbide semiconductors, including their development and production, and their application in the power electronic devices. The papers address silicon carbide growth, including bulk, epitaxial, and thin film growth; theory and characterization, including fundamentals and material properties, point and extended defects, and surfaces and interfaces; processing, focusing on doping, implantation, and contact, dielectric growth and characterization, and etching and machining; devices, including diodes, power MOSFETs, JFETs and IGBTs; reliability, circuits and applications. The contributors are academics and industrialists from around the world.

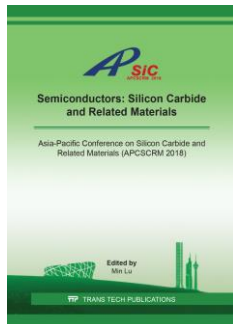
#### Conference Proceedings

**Topics:** Electronics, Manufacturing, Materials Science, Nanoscience

**Keywords:** 3C-SiC, 4H-SiC, Bulk Growth, Characterization, Chemical Vapor Deposition (CVD), Defects, Dislocation, Epitaxial Growth, Ion Implantation, MOSFET, Oxide-Silicon Interface, Power Electronics, Processing, Semiconductor Devices, Silicon Carbide, Silicon Carbide (SiC), Silicon Carbide Polytypes, Wide Bandgap Semiconductor

**Prices:** Print: **US\$ 803.00/ EUR 803.00** Print: 978-3-0357-1332-9  
eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3332-7  
eBook Multi-User: **US\$ 347.00/ EUR 347.00** 916 pages, 2019

<https://www.scientific.net/978-3-0357-1332-9/book>



### Semiconductors: Silicon Carbide and Related Materials

**Selected, peer reviewed papers from the Asia-Pacific Conference on Silicon Carbide and Related Materials (APCSCRM 2018), July 9-12, 2018, Beijing, China**

Edited by: Min Lu

The Asia-Pacific Conference on Silicon Carbide and Related Materials (APCSCRM 2018) was held on July 9-12, 2018 in Beijing, China. This collection compiled by results of this conference and reflect new developments in the areas of wide bandgap semiconductors (SiC, GaN, Ga<sub>2</sub>O<sub>3</sub>, and etc.) and their device fabrication, including advances in the bulk and epitaxial growth, material structure and property, photoelectron and electronic device. We hope that this edition will be interesting and useful for many specialists from the area of research and designing of semiconductor materials and semiconductor devices.

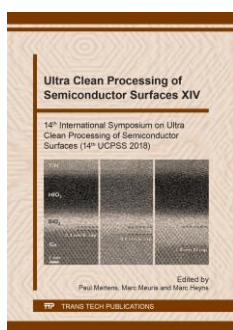
#### Conference Proceedings

**Topics:** Electronics, Materials Science, Nanoscience

**Keywords:** Crystal Growth, Graphene, High-Temperature Thermal Oxidation, Microelectronics Devices, Semiconductor, SiC MOSFET Structure, Silicon Carbide, Substrate, Thin Film, Vapor Deposition

**Prices:** Print: **US\$ 226.00/ EUR 226.00** Print: 978-3-0357-1385-5  
 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3385-3  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 226 pages, 2019

<https://www.scientific.net/978-3-0357-1385-5/book>



### Ultra Clean Processing of Semiconductor Surfaces XIV

**Selected, peer reviewed papers from the 14th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (14th UCPSS 2018), September 3-5, 2018, Leuven, Belgium**

Edited by: Dr. Paul Mertens, Marc Meuris and Marc Heyns

The 14th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (14th UCPSS 2018, Leuven, Belgium, September 3-5, 2018) was organized by IMEC and the scope of this symposium includes all issues related to contamination, cleaning and surface preparation in mainstream large-scale Integrated Circuit manufacturing. This collection will be interesting and useful for experts in the field of microelectronics.

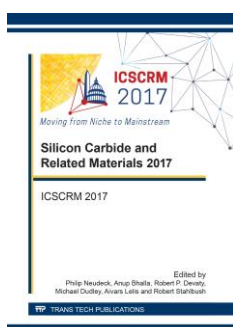
#### Conference Proceedings

**Topics:** Electronics, Manufacturing, Materials Science, Nanoscience

**Keywords:** Contamination, Etching, Interconnects, Microelectronics, Particle Removal, Pattern Collapse, Semiconductors, Surface Cleaning, Surface Functionalization, Wetting Drying

**Prices:** Print: **US\$ 275.00/ EUR 275.00** Print: 978-3-0357-1417-3  
 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3417-1  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 356 pages, 2018

<https://www.scientific.net/978-3-0357-1417-3/book>



### Silicon Carbide and Related Materials 2017

**Selected, peer reviewed papers from the 2017 International Conference on Silicon Carbide and Related Materials (ICSCRM 2017), September 17-22, 2017, Washington, DC, USA**

Edited by: Robert Stahlbush, Philip G. Neudeck, Anup Bhalla, Robert P. Devaty, Michael Dudley and Aivars J. Lelis

This collection of papers by the results of the 2017 International Conference on Silicon Carbide and Related Materials (ICSCRM 2017, September 17-22 in Washington, DC, USA) presents for readers the latest progress in the field of development and production of silicon carbide semiconductors and their application in the power electronic devices.

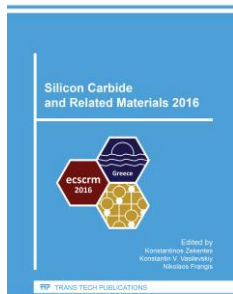
#### Conference Proceedings

**Topics:** Electronics, Manufacturing, Materials Science, Nanoscience

**Keywords:** Applications, Bulk and Epitaxial Growth, Circuits, MOS and MOSFET Structures, Power Devices, Processing, Properties, Semiconductors, Silicon Carbide, Surface Defects

**Prices:** Print: **US\$ 589.00/ EUR 589.00** Print: 978-3-0357-1145-5  
 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3145-3  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1042 pages, 2018

<https://www.scientific.net/978-3-0357-1145-5/book>



### Silicon Carbide and Related Materials 2016

**Selected, peer reviewed papers from the 11th European Conference on Silicon Carbide and Related Materials 2016 (ECSCRM 2016), September 25-29, 2016, Halkidiki, Greece**

Edited by: Konstantinos Zekentes, Konstantin V. Vasilevskiy and Nikolaos Frangis

This collection of papers by results of the 11th European Conference on Silicon Carbide and Related Materials 2016 (ECSCRM 2016, 25-29 September, Halkidiki, Greece) reflects the latest progress in the field of wide bandgap semiconductors, focusing on silicon carbide. In addition, it covers some selected aspects in related materials like silicon, graphene, gallium oxide and III-nitrides.

#### Conference Proceedings

**Topics:** Materials Science, Nanoscience

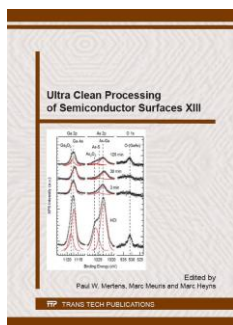
**Keywords:** Applications, MOS, MOSFET Structures, Processing, Properties, Semiconductors, Silicon Carbide, Surface Defects

Prices: Print: **US\$ 429.00/ EUR 429.00** Print: 978-3-0357-1043-4

eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3043-2

eBook Multi-User: **US\$ 347.00/ EUR 347.00** 796 pages, 2017

<https://www.scientific.net/978-3-0357-1043-4/book>



### Ultra Clean Processing of Semiconductor Surfaces XIII

**Selected, peer reviewed papers from the 13th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), September 12-14, 2016, Knokke, Belgium**

Edited by: Paul W. Mertens, Marc Meuris and Marc Heyns

This volume contains the proceedings of 13th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS 2016, Knokke, Belgium, September 12-14, 2016) ([www.ucpss.org](http://www.ucpss.org)) and includes studies on cleaning such as particle removal using acoustic enhancement, removal of metallic contamination, pattern collapse of fine flexible and fragile features, wetting and drying issues, control and measuring of contamination. FEOL and BEOL topics cover: chemistry of semiconductor surfaces, cleaning related to new gate stacks, cleaning at the interconnect level, selective wet etching, resist strip and polymer removal, cleaning and contamination control for various new materials and cleaning after Chemical-Mechanical-Polishing (CMP).

#### Conference Proceedings

**Topics:** Materials Science

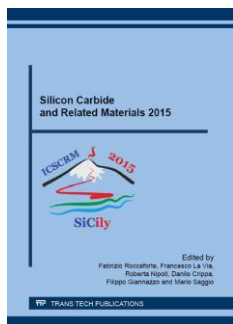
**Keywords:** Contamination Control, Integrated Circuits, Microelectronic Structures, Photovoltaics, Precision Cleaning, Semiconductor Surfaces, Surface Defects, Surface Impurities, Ultra Cleaning, Wet Cleaning

Prices: Print: **US\$ 347.00/ EUR 347.00** Print: 978-3-0357-1084-7

eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3084-5

eBook Multi-User: **US\$ 347.00/ EUR 347.00** 414 pages, 2016

<https://www.scientific.net/978-3-0357-1084-7/book>



### Silicon Carbide and Related Materials 2015

**Selected, peer reviewed papers from the 16th International Conference on Silicon Carbide and Related Materials, October 4-9, 2015, Giardini Naxos, Italy**

Edited by: Fabrizio Roccaforte, Francesco La Via, Roberta Nipoti, Danilo Crippa, Filippo Giannazzo and Mario Saggio

This volume collects the papers from the 16th International Conference on Silicon Carbide and Related Materials (ICS CRM 2015), held in Giardini Naxos, Italy, in October 2015. During the conference, the researchers discussed issues in the field of wide bandgap semiconductors, focusing on silicon carbide, but also III-nitrides, and related materials like graphene. The major sections of the book collect papers in the area of material growth, characterization, processing, devices and related materials and technologies. The papers are grouped as follows: Chapter 1: SiC Growth Chapter 2: SiC Theory and Characterization Chapter 3: SiC Processing Chapter 4: SiC Devices Chapter 5: Related Materials

#### Conference Proceedings

**Topics:** Materials Science, Mechanics

**Keywords:** Bulk Growth of SiC, Characterization, Epitaxial Growth of SiC, Graphene, III-Nitrides, MOS, Power Electronics, Processing of SiC, SiC Devices, Silicon Carbide, Wide Bandgap Semiconductor

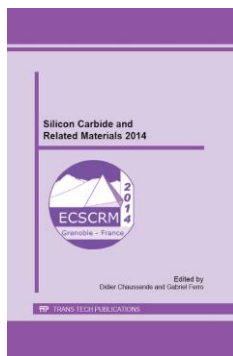
Prices: Print: **US\$ 363.00/ EUR 363.00** Print: 978-3-0357-1042-7

eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-0357-3042-5

eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1264 pages, 2016

<https://www.scientific.net/978-3-0357-1042-7/book>





### Silicon Carbide and Related Materials 2014

**Selected peer reviewed papers from the European Conference on Silicon Carbide & Related Materials (ECSCRM 2014), September 21-25, 2014, Grenoble, France**

Edited by: Didier Chaussende and Gabriel Ferro

Collection of selected, peer reviewed papers from the European Conference on Silicon Carbide & Related Materials (ECSCRM 2014), September 21-25, 2014, Grenoble, France.

The 243 papers are grouped as follows:

- I. SiC Growth;
  - I.1 Bulk Growth;
  - I.2 Epitaxial and Thin Film Growth;
- II. SiC Theory and Characterization;
  - II.1 Fundamental and Material Properties;
  - II.2 Point and Extended Defects;
  - II.3 Surfaces and Interfaces;
- III. SiC Processing;
  - III.1 Doping, Implantation and Contact;
  - III.2 Dielectric Growth and Characterization;
  - III.3 Etching and Machining;
- IV. SiC Devices;
  - IV.1 Diodes;
  - IV.2 Field Effect Transistors;
  - IV.3 Other Devices;
- V. Related Materials;
  - V.1 Other Carbon Based Materials;
  - V.2 Nitrides and Other Materials

#### Conference Proceedings

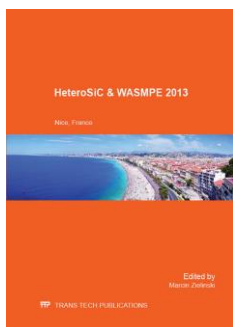
**Topics:** Materials Science

**Keywords:** Bulk Growth, Characterization, Epitaxial Growth, Graphene, MOS, Power Electronics, Processing, Silicon Carbide, Wide Bandgap Semiconductor

Prices: Print: **US\$ 556.00/ EUR 556.00**  
 eBook Single-User: **US\$ 198.00/ EUR 198.00**  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00**

Print: 978-3-03835-478-9  
 eBook: 978-3-03826-943-4  
 1078 pages, 2015

<https://www.scientific.net/978-3-03835-478-9/book>



### HeteroSiC & WASMPE 2013

**Selected, peer reviewed papers from the 5th Edition of International Workshop on Silicon Carbide Hetero-Epitaxy and Workshop on Advanced Semiconductor Materials and Devices for Power Electronics Applications (HeteroSiC-WASMPE 2013), June 17-19, 2013, Nice, France**

Edited by: Marcin Zielinski

Collection of selected, peer reviewed papers from the 2013 HeteroSiC-WASMPE, June 17-19, 2013, Nice, France.

The 25 papers are grouped as follows:

- Chapter 1: 3C-SiC – Epitaxy, Characterization and Devices;
- Chapter 2: 4H-SiC and 15R-SiC – Growth and Characterization;
- Chapter 3: Related Materials – Gallium Nitride, Graphene and Silicon;
- Chapter 4: SiC Devices and Device Processing

#### Conference Proceedings

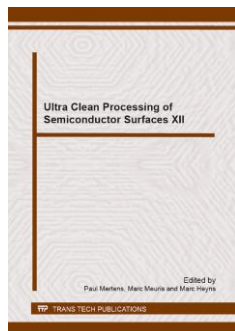
**Topics:** Materials Science, Nanoscience

**Keywords:** 15R-SiC – Growth, 3C-SiC – Epitaxy, 4H-SiC, Characterization, Device Processing, Devices, Graphene, Related Materials – Gallium Nitride, SiC Devices, Silicon

Prices: Print: **US\$ 156.00/ EUR 156.00**  
 eBook Single-User: **US\$ 160.00/ EUR 160.00**  
 eBook Multi-User: **US\$ 280.00/ EUR 280.00**

Print: 978-3-03835-294-5  
 eBook: 978-3-03826-678-5  
 156 pages, 2014

<https://www.scientific.net/978-3-03835-294-5/book>

**Ultra Clean Processing of Semiconductor Surfaces XII****Selected, peer reviewed papers from the 12th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), September 21-24, 2014, Brussels, Belgium**

Edited by: Paul Mertens, Marc Meuris and Marc Heyns

Collection of selected, peer reviewed papers from the 12th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), September 21-24, 2014, Brussels, Belgium.

The 71 papers are grouped as follows:

- Chapter 1: Cleaning for FEOL Applications,
- Chapter 2: Cleaning for FEOL Applications: Beyond-Si Active Area,
- Chapter 3: Wet Etching for FEOL Applications,
- Chapter 4: Wet Processing of High Aspect Ratio Structures,
- Chapter 5: Fluid Dynamics, Cleaning Mechanics,
- Chapter 6: Photo Resist Performance and Rework,
- Chapter 7: Cleaning for BEOL Interconnect Applications,
- Chapter 8: Cleaning for 3D Applications,
- Chapter 9: Contamination Control and AMC,
- Chapter 10: Cleaning and Wet Etching for Semiconductor Photo-Voltaic Cells

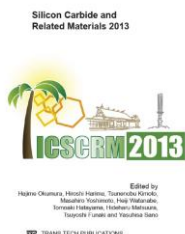
**Conference Proceedings**

**Topics:** Materials Science

**Keywords:** Contamination Control, Integrated Circuits, Micro-Electronic Structures, Photovoltaic Processing, Precision Cleaning, Proceedings UCPSS, Semiconductor Surfaces, Surface Defects, Surface Impurities, Ultra-Cleaning, Wet Cleaning

Prices: Print: **US\$ 248.00/ EUR 248.00** Print: 978-3-03835-242-6  
 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03826-626-6  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 350 pages, 2014

<https://www.scientific.net/978-3-03835-242-6/book>

**Silicon Carbide and Related Materials 2013****Selected, peer reviewed papers from the 15th International Conference on Silicon Carbide and Related Materials (ICSCRM 2013), September 29 – October 4, 2013, Miyazaki, Japan**

Edited by: Hajime Okumura, Hiroshi Harima, Prof. Tsunenobu Kimoto, Masahiro Yoshimoto, Heiji Watanabe, Tomoaki Hatayama, Hideharu Matsuura, Tsuyoshi Funaki and Yasuhisa Sano

The papers cover most of the current research efforts on the wide bandgap semiconductor silicon carbide (SiC) and related materials, and a wide range of topics from crystal growth to their power electronics applications. In these proceedings, the written version of 270 contributed papers and 13 invited papers are included. The major chapters of the proceedings collect papers in the area of bulk growth of SiC, epitaxial growth of SiC, physical properties and characterization, processing, devices and application. There are three shorter chapters on graphene, III-nitrides and related materials.

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](http://www.thomson.com).

The 283 papers are grouped as follows:

- Chapter 1: SiC Bulk Growth;
- Chapter 2: SiC Epitaxial Growth;
- Chapter 3: Physical Properties and Characterization of SiC;
- Chapter 4: Processing of SiC;
- Chapter 5: Devices and Circuits;
- Chapter 6: Related Materials.

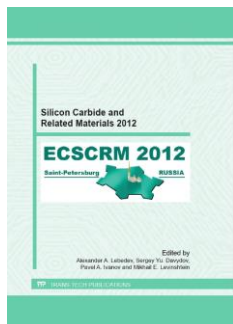
**Conference Proceedings**

**Topics:** Materials Science

**Keywords:** Application, Bulk Growth of SiC, Characterization, Devices, Epitaxial Growth of SiC, Graphene, III-Nitrides, Physical Properties, Processing, Related Materials

Prices: Print: **US\$ 561.00/ EUR 561.00** Print: 978-3-03835-010-1  
 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03826-391-3  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1246 pages, 2014

<https://www.scientific.net/978-3-03835-010-1/book>

**Silicon Carbide and Related Materials 2012**

**Selected, peer reviewed papers from the 9th European Conference on Silicon Carbide and Related Materials (ECSCRM 2012), September 2 -6, 2012, St. Petersburg, Russian Federation**

Edited by: Alexander A. Lebedev, Sergey Yu. Davydov, Pavel A. Ivanov and Mikhail E. Levinshtein

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

The volume on Silicon Carbide and Related Materials is divided into 10 chapters ranging from "Bulk growth" to "Device and application". The reports demonstrate the technical and scientific advances in the related areas: 150 mm 4H-SiC wafers are now commercially available, a significant improvement of the carrier lifetime (up to 35 ms) for n-type SiC epi-layers has been achieved, SiC diodes have a large market share in server and telecom power applications requiring the maximum efficiency, and a variety of 1- cm<sup>2</sup>, 15 kV class bipolar devices have been demonstrated, including PN Diodes, IGBTs and GTO. In general, the number of contributions devoted to application of SiC and related materials, GaN and solid solutions based on this material, and graphene is steadily increasing compared to the 2011 edition.

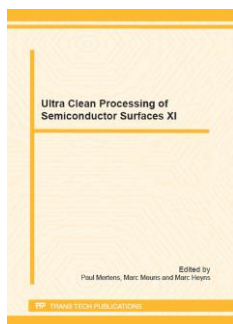
**Conference Proceedings**

**Topics:** Materials Science

**Keywords:** 4H-SiC Epitaxial Growth, Application, Bulk Growth, Device, Electrical Characterization, Interface Characterization, Material Characterisation, Point Defects, Structural Characterization

**Prices:** Print: **US\$ 561.00/ EUR 561.00** Print: 978-3-03785-624-6  
 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03826-005-9  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1200 pages, 2013

<https://www.scientific.net/978-3-03785-624-6/book>

**Ultra Clean Processing of Semiconductor Surfaces XI**

**Selected, peer reviewed papers from the 11th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), September 17-19, 2012, Gent, Belgium**

Edited by: Paul Mertens, Marc Meuris and Marc Heyns

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

This volume covers various aspects of ultra-clean technology for the large-scale integration of semiconductors. These include cleaning and contamination control in both front-end-of-line (FEOL) and back-end-of-line (BEOL) processing, as well as cleaning for semiconductor photo-voltaic applications. Also covered are studies of general topics such as particle removal using acoustic enhancement, the removal of metallic contamination, pattern collapse of fine flexible and fragile features, wetting and drying, contamination control and contamination metrology. The FEOL and BEOL contributions also treat the surface chemistry of silicon and other semiconductors, cleaning related to new gate stacks, cleaning at the interconnect level, resist strip and polymer removal, cleaning and contamination control for various new materials and cleaning following CMP (chemical mechanical polishing).

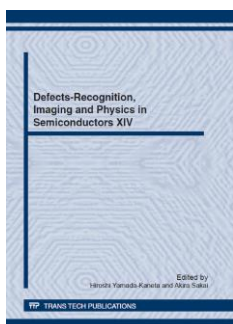
**Conference Proceedings**

**Topics:** Materials Science

**Keywords:** BEOL, Bubble, Cavitation, Cleaning, Contact Line, Drying, Megasonic, Megasonic Cleaning, Metal Contamination, Particle Removal, Pattern Collapse, Pattern Damage, RMG, Self-Assembled Monolayer (SAM), Surface Cleaning, Texturization, Wafer Cleaning, Wet Clean, Wet-Chemical Treatment, Wetting

**Prices:** Print: **US\$ 248.00/ EUR 248.00** Print: 978-3-03785-527-0  
 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03813-908-9  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 350 pages, 2012

<https://www.scientific.net/978-3-03785-527-0/book>

**Defects-Recognition, Imaging and Physics in Semiconductors XIV**

**Selected, peer reviewed papers from the 14th International Conference on Defects-Recognition, Imaging and Physics in Semiconductors (DRIP-14), September 25-29, 2011, Miyazaki, Japan**

Edited by: Hiroshi Yamada-Kaneta and Akira Sakai

This volume documents the latest understanding of many topics of current interest in the science and technology of defects in semiconductors. The investigation of defects in semiconductors is a little different to that in other fields of materials science: in order to observe defects in semiconductors and elucidate their physical nature, a very wide range of tools and techniques has been introduced or created; thanks to the inventive ideas of the researchers. This work clearly reflects the lively state of defect investigation in semiconductors.

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

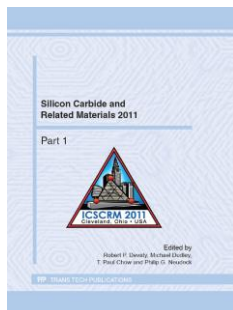
**Conference Proceedings**

**Topics:** Materials Science, Nanoscience

**Keywords:** Functional Oxides, Impurity, Nanostructures, Nitride, Photovoltaics, SiC Defect Identification

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 eBook Multi-User: **US\$ 338.00/ EUR 338.00** 324 pages, 2012

<https://www.scientific.net/978-3-03785-442-6/book>



### Silicon Carbide and Related Materials 2011

**Selected, peer reviewed papers from the 14th International Conference on Silicon Carbide and Related Materials 2011 (ICSCRM 2011), September 11-16, 2011, Cleveland, Ohio, USA**

Edited by: Robert P. Devaty, Michael Dudley, T. Paul Chow and Philip G. Neudeck

The aim of this special collection of peer-reviewed papers is to present recent progress in crystal growth, in the characterization and control of material properties, as well as in other basic research issues concerning silicon carbide (SiC) and other wide-bandgap semiconductors such as group-III nitrides and diamond. The latest research results relevant to wafer production processes, device fabrication technologies and device applications are discussed. These included the latest results in the development and commercialization of advanced devices and circuits used for energy saving, high-voltage switching, high-frequency high-power amplification and high-temperature operation. Work on the growth, characterization and device exploitation of epitaxial graphene was also covered. Evolving industrial products and capabilities were also highlighted.

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

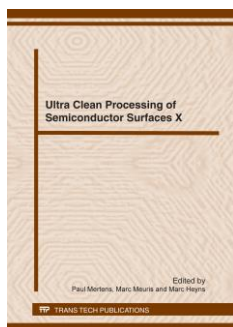
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** 3C-SiC, 4H-SiC, Carrier Lifetime, Defect, Dislocation, Epitaxial Graphene, Epitaxial Growth, Graphen, High Voltage (HV), High-Temperature, Interface State, Ion Implantation, Junction Field Effect Transistor (JFET), MOS, MOSFET, Photoluminescence (PL), PiN Diode, Reliability, Silicon Carbide (SiC), Stacking Fault

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 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03813-833-4  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1500 pages, 2012

<https://www.scientific.net/978-3-03785-419-8/book>



### Ultra Clean Processing of Semiconductor Surfaces X

**Selected, peer reviewed papers from the 10th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), September 20-22, 2010, Ostend, Belgium**

Edited by: Paul Mertens, Marc Meuris and Marc Heyns

The International Symposium on Ultra-Clean Processing of Semiconductor Surfaces (UCPSS) is a bi-annual conference which has been organized by IMEC since 1992.

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

The scope of the symposium includes all issues related to contamination, cleaning and surface preparation in mainstream large-scale Integrated Circuit manufacture. At first, silicon was typically the main semiconductor of interest. As other semiconducting materials such as SiGe, SiC, Ge and III-V compounds came under consideration for future devices, the scope was broadened so as to include these materials. Paralleling the fast-moving CMOS industry, the photovoltaic industry has also recognized the need to make improvements in cleaning. Moreover, in order to promote these semiconductor cleaning activities in PV, it was decided to add a special session focused on this topic.

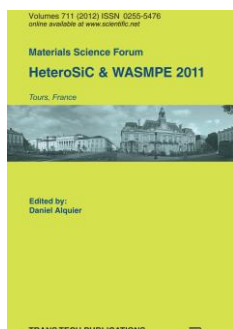
#### Conference Proceedings

**Topics:** Environmental Engineering, Mechanics

**Keywords:** 3D Integration, Amorphous Silicon, BEOL, Damage, Droplet, Germanium, InGaAs, Megasonic Cleaning, Particle Removal, Pattern Collapse, Photovoltaic (PV), Physical Cleaning, Resist Removal, Si, Solar Cell, Texturing, ToF-SIMS, UV Treatment, Wet Cleaning, XPS

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 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 356 pages, 2012

<https://www.scientific.net/978-3-03785-388-7/book>



### HeteroSiC & WASMPE 2011

**Selected, peer reviewed papers from the 4th Workshop on Advanced Semiconductor Materials and Devices for Power Electronics Applications (HeteroSiC & WASMPE 2011), June 27-30, 2011, Tours, France**

Edited by: Prof. Daniel Alquier

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

The aim of this collection of peer-reviewed papers is to promote the open discussion of SiC hetero-epitaxy as related to the possibility of growing SiC on other materials and of growing various SiC polytypes so as to take advantage of the possibilities of band-gap engineering. These proceedings present the latest developments in Silicon Carbide, and the prospects for Gallium Nitride (GaN on Si, SiC, sapphire and free-standing) and Diamond power electronics. Finally, the progress made in Graphene technology, such as its introduction into devices and its relationship to SiC epitaxial material, is considered.

#### Conference Proceedings

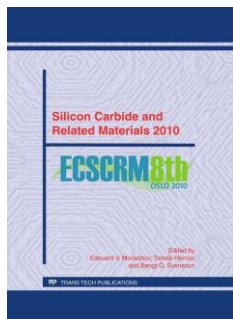
**Topics:** Materials Science

**Keywords:** Band Gap Engineering, Epitaxial SiC, Gallium Nitride, Graphene, Hetero-Epitaxy MEMS, Polytype SiC, Silicon Carbide

**Prices:** Print: **US\$ 165.00/ EUR 165.00** Print: 978-3-03785-332-0  
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 eBook Multi-User: **US\$ 289.00/ EUR 289.00** 270 pages, 2012

<https://www.scientific.net/978-3-03785-332-0/book>





### Silicon Carbide and Related Materials 2010

**Selected, peer reviewed papers from the 8th European Conference on Silicon Carbide and Related Materials (ECSCRM 2010), held in Oslo (Sundvolden Conference Centre), Norway, August 29th – September 2nd**

Edited by: Edouard V. Monakhov, Tamás Hornos and Bengt. G. Svensson

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

This volume contains the proceedings of the 8th European Conference on Silicon Carbide and Related Materials (ECSCRM 2010), held in Oslo (Sundvolden Conference Centre), Norway, on August 29th – September 2nd. The editions of ECSCRM have developed over the years and, today, ECSCRM is the leading European conference in the field of 'SiC and related materials and their applications'. This volume is divided into five chapters ranging from 'SiC growth' to 'Biosystems' and thus represents a comprehensive coverage of the field.

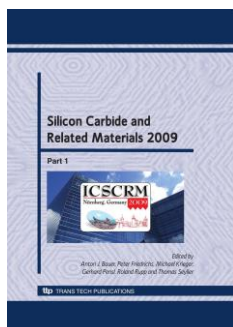
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** 3C-SiC, 4H-SiC, 6H-SiC, Carrier Lifetime, Defect, Dislocation, DLTS, Electron Irradiation, Epitaxial Graphene, Gallium Nitride (GaN), Ion Implantation, Junction Field Effect Transistor (JFET), Mobility, MOS, MOSFET, Ohmic Contact, Passivation, Silicon Carbide (SiC), Surface Morphology, TEM

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 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 876 pages, 2011

<https://www.scientific.net/978-3-03785-079-4/book>



### Silicon Carbide and Related Materials 2009

**Selected, peer reviewed papers from the International Conference on Silicon Carbide and Related Materials 2009, Nürnberg, Germany, October 11 – 16, 2009**

Edited by: Anton J. Bauer, Peter Friedrichs, Michael Krieger, Gerhard Pensl, Roland Rupp and Thomas Seyller

The 13th International Conference on Silicon Carbide and Related Materials 2009 (ICSCRM 2009) was held at the Congress Center, Nürnberg (CCN), Germany from October 11 to 16, 2009. This was a truly important and exciting event in the history of wide-bandgap semiconductors, as 503 scientists and engineers from 29 countries reported and discussed the progress made during the previous two years.

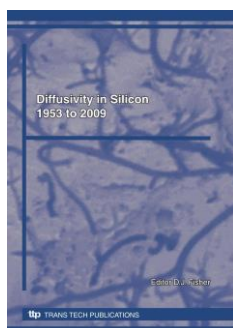
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** Bipolar Diode, Bulk Crystal Growth, Carrier Lifetime, Epitaxial Growth, Etching, Graphen, Heteroepitaxy, Interface Trap, Ion Implantation, Junction Field Effect Transistor (JFET), MOS Capacitor, MOSFET, Nitridation, Photoluminescence (PL), Power Device, Raman Spectroscopy, Reliability, Schottky Barrier Diode (SBD), Stacking Fault, TEM

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 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03813-335-3  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1340 pages, 2010

<https://www.scientific.net/978-0-87849-279-4/book>



### Diffusivity in Silicon 1953 to 2009

Edited by: Dr. David J. Fisher

This work is essentially an update of previous compilations of information on the diffusivity of elements in semiconductor-grade silicon. It subsumes the data contained in B.L.Sharma's monograph on 'Diffusion in Semiconductors' (Trans Tech Publications, 1970), plus the data contained in Diffusion and Defect Data (Diffusion in Silicon) Volume 45 (1986), Defect and Diffusion Forum (Diffusion in Silicon - 10 years of Research) Volumes 153-155 (1998), Defect and Diffusion Forum (Diffusion in Silicon - a Seven-Year Retrospective) Volume 241 (2005) and the latest data from recent Semiconductor Retrospectives: Defect and Diffusion Forum, Volumes 245-246, Volumes 261-262, Volume 272 and Volume 282. In addition, the resultant 400 items of data were analysed in the hope of finding some unifying correlation. It was indeed found that all of the points (each the average of many independent measurements) seemed to fall on a number of distinct straight lines passing through the origin of a plot of activation energy versus atomic radius. However, it remained unclear how these correlations could be explained.

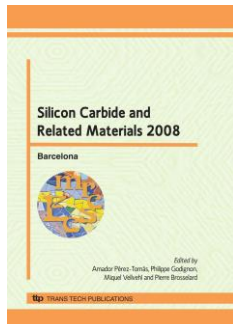
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** Al Surface Diffusions, All Pipes Diffusions, As Bulk Diffusion, Atomic Diffusion, Diffusion in Nonstoichiometric Intermetallic Compounds, Diffusion in Semiconductors, Semiconductor-Grade Silicon

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 eBook Single-User: **US\$ 165.00/ EUR 165.00** eBook: 978-3-03813-381-0  
 eBook Multi-User: **US\$ 289.00/ EUR 289.00** 230 pages, 2010

<https://www.scientific.net/978-3-908451-85-3/book>



### Silicon Carbide and Related Materials 2008

**Selected, peer reviewed papers from the 7th European Conference on Silicon Carbide and Related Materials, September 7 – 11, Barcelona, Spain**

Edited by: Amador Pérez-Tomás, Philippe Godignon, Miquel Vellvehí and Pierre Brosselard

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

Wide-bandgap semiconductors, such as silicon carbide and group-III nitrides, are attracting increased attention as promising materials for high-power, high-frequency and high-temperature electronics use, as well as for short-wavelength light-emitters.

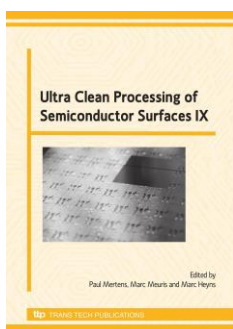
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** 3C-SiC, 4H-SiC, Annealing, Avalanche Breakdown, Basal Plane Dislocation (BPD), Breakdown Voltage, CVD, Defect, Dislocation, DLTS, High-Temperature, Interface States (or Traps), Ion Implantation, Metal-Oxide-Semiconductor Field Effect Transistor (MOSFET), Ohmic Contact, Photoluminescence (PL), Reliability, Schottky Diode, Silicon Carbide (SiC), Stacking Fault

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 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03813-253-0  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1030 pages, 2009

<https://www.scientific.net/978-0-87849-334-0/book>



### Ultra Clean Processing of Semiconductor Surfaces IX

**Selected, peer reviewed papers from the 9th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS), held in Bruges, Belgium, September 22-24, 2008**

Edited by: Paul Mertens, Marc Meuris and Marc Heyns

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

The contents of this publication include every conceivable issue related to contamination, cleaning and surface preparation during mainstream large-scale integrated circuit manufacture. Typically, silicon is used as the main semiconductor substrate. However, other semiconducting materials such as SiGe and SiC are currently being used in the source-sink junction areas, and materials such as Ge and III-V compounds are being considered for the transistor channel region of future-generation devices.

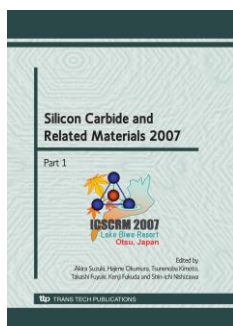
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** Cavitation, Cleaning, Copper (Cu), Damage, Etch Rate, HF, Megasonic, Metal Gate, Metallic Contamination, Ozone, Particle, Particle Removal, Photoresist Removal, Silicon-Germanium (SiGe), Single Wafer Cleaning, Solvent, SPM, Wet Cleaning, Wet Strip, XPS

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 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03813-282-0  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 412 pages, 2009

<https://www.scientific.net/978-3-908451-64-8/book>



### Silicon Carbide and Related Materials 2007

**Selected, peer reviewed papers from the International Conference on Silicon Carbide and Related Materials 2007, Otsu Prince Hotel Convention Hall, Lake Biwa Resort, Otsu, Japan, October 14 – 19, 2007**

Edited by: Akira Suzuki, Hajime Okumura, Prof. Tsunenobu Kimoto, Takashi Fuyuki, Kenji Fukuda and Dr. Shin-ichi Nishizawa

Wide-bandgap semiconductors, such as silicon carbide and group-III nitrides have attracted increasing attention as promising target materials for high-power, high-frequency and high-temperature electronics use, as well as exploitation as short-wavelength light-emitters.

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

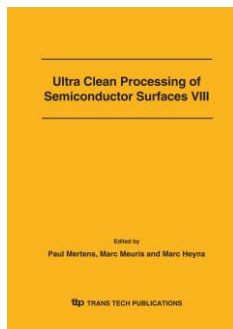
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** 3C-SiC, 4H-SiC, 6H-SiC, Basal Plane Dislocation (BPD), Channel Mobility, Chemical Vapor Deposition (CVD), Defect, Dislocation, Gallium Nitride (GaN), High Voltage (HV), High-Temperature, Interface States (or Traps), Ion Implantation, Junction Field Effect Transistor (JFET), Metal-Oxide-Semiconductor Field Effect Transistor (MOSFET), Photoluminescence (PL), Reliability, Silicon Carbide (SiC), Stacking Fault, TEM

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<https://www.scientific.net/978-0-87849-357-9/book>



### Ultra Clean Processing of Semiconductor Surfaces VIII

**Selected, peer reviewed papers from the 8th International Symposium on Ultra Clean Processing of Semiconductor Surfaces (UCPSS) held in Antwerp, Belgium, September 18-20, 2006**

Edited by: Dr. Paul Mertens, Marc Meuris and Marc Heyns

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

This collection of 86 peer-reviewed papers covers all aspects of the use of ultra-clean technology for large-scale integration on semiconductors, and cleaning and contamination-control in both front-end-of-line (FEOL) and back-end-of-line (BEOL) processing.

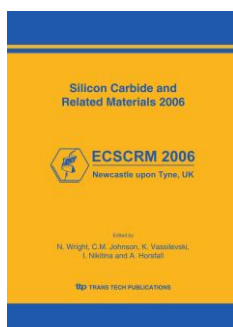
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** Cavitation, Cleaning, Copper (Cu), Germanium, HF, Megasonic, Megasonic Cleaning, Metal Gate, Particle Removal, Photoresist Stripping, Post-Etch Cleaning, SC-1, Silicon, Silicon-Germanium (SiGe), Single Wafer Cleaning, Supercritical CO<sub>2</sub>, Surface Preparation, TXRF, Wet Cleaning, X-Ray Photoelectron Spectroscopy (XPS)

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 eBook Single-User: **US\$ 198.00/ EUR 198.00** eBook: 978-3-03813-195-3  
 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 400 pages, 2007

<https://www.scientific.net/978-3-908451-46-4/book>



### Silicon Carbide and Related Materials 2006

**Proceedings of the 6th European Conference on Silicon Carbide and Related Materials, Newcastle upon Tyne, UK, September 2006**

Edited by: N. Wright, C.M. Johnson, K. Vassilevski, I. Nikitina and A. Horsfall

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

Silicon Carbide (SiC), Gallium Nitride (GaN) and Diamond are wide-bandgap semiconductors which also possess extraordinary chemical, electrical and optical properties that make them uniquely attractive for the fabrication of high-power and high-frequency electronic devices, as well as of light-emitters and sensors which have to survive harsh operating conditions.

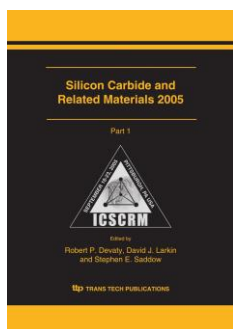
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** 3C-SiC, 4H-SiC, Chemical Vapor Deposition (CVD), Interface States (or Traps), Photoluminescence (PL)

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 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1100 pages, 2007

<https://www.scientific.net/978-0-87849-442-2/book>



### Silicon Carbide and Related Materials 2005

**Proceedings of the International Conference on Silicon Carbide and Related Materials – 2005, Pittsburgh, Pennsylvania, USA, September 18-23, 2005**

Edited by: Robert P. Devaty, David J. Larkin and Stephen E. Saddow

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

Silicon Carbide (SiC), Gallium Nitride (GaN) and Diamond are examples of wide-bandgap semiconductors having chemical, electrical and optical properties which make them very attractive for the fabrication of high-power and high-frequency electronic devices, as well as light-emitters and sensors which have to operate under harsh conditions.

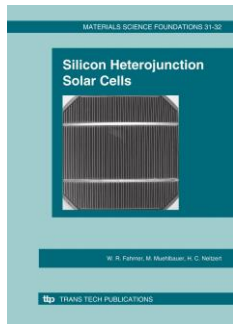
#### Conference Proceedings

**Topics:** Materials Science

**Keywords:** 3C-SiC, 4H-SiC, 6H-SiC, Atomic Force Microscope (AFM), Bipolar Junction Transistor (BJT), Bulk Growth, Chemical Vapor Deposition (CVD), Defect, Dislocation, DLTS, Epitaxial Growth, EPR, Gallium Nitride (GaN), Ion Implantation, Metal-Oxide-Semiconductor Field Effect Transistor (MOSFET), Ohmic Contact, Photoluminescence (PL), PiN Diode, Schottky Diode, Stacking Fault

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 eBook Multi-User: **US\$ 347.00/ EUR 347.00** 1670 pages, 2006

<https://www.scientific.net/978-0-87849-425-5/book>



### Silicon Heterojunction Solar Cells

Edited by: W.R. Fahrner, M. Muehlbauer and H.C. Neitzert

The world of today must face up to two contradictory energy problems: on the one hand, there is the sharply growing consumer demand in countries such as China and India. On the other hand, natural resources are dwindling. Moreover, many of those countries which still possess substantial gas and oil supplies are politically unstable. As a result, renewable natural energy sources have received great attention. Among these, solar-cell technology is one of the most promising candidates. However, there still remains the problem of the manufacturing costs of such cells. Many attempts have been made to reduce the production costs of "conventional" solar cells (manufactured from monocrystalline silicon using diffusion methods) by instead using cheaper grades of silicon, and simpler pn-junction fabrication. That is the 'hero' of this book; the heterojunction solar cell.

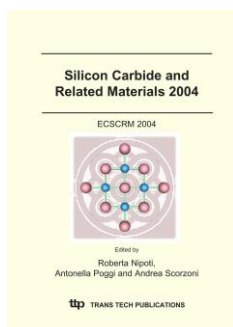
#### Monograph

**Topics:** Materials Science

**Keywords:** Absorber Material, Amorphous Silicon, Deposition Temperature, Emitter Layer, Grid, Metallization, Microcrystalline Silicon, Photovoltaics, Semiconductor Thin Layers, Surface Treatment

Prices: Print: **US\$ 171.00/ EUR 171.00** Print: 978-0-87849-486-6  
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 eBook Multi-User: **US\$ 299.00/ EUR 299.00** 208 pages, 2006

<https://www.scientific.net/978-0-87849-486-6/book>



### Silicon Carbide and Related Materials 2004

#### Proceedings of the 5th European Conference on Silicon Carbide and Related Materials, August 31 - September 4, 2004, Bologna, Italy

Edited by: Dr. Roberta Nipoti, Antonella Poggi and Andrea Scorzoni

Volume is indexed by [Thomson Reuters CPCI-S \(WoS\)](#).

Silicon Carbide (SiC), Gallium Nitride (GaN) and Diamond are examples of wide-bandgap semiconductors having chemical, electrical and optical properties which make them very attractive for the fabrication of high-power and high-frequency electronic devices, as well as of light-emitters and sensors which have to operate under harsh conditions.

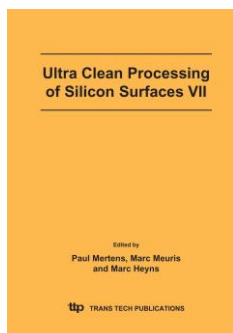
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