Prof. KAŞİF TEKER

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Biography

He graduated from METU Department of Metallurgical and Materials Engineering. He completed his MS at Ohio State University and his PhD at Case Western Reserve University in Materials Science and Engineering. After completion of his PhD, he has worked as a scientist in semiconductor industry in US. He has also served as a faculty at Frostburg State University (eight years) -Maryland and as a research scientist at University of Delaware. His research interests include nanoelectronics, nanophotonics, III-V compound semiconductor devices (HBT, HEMT, MOSFET, photodetectors), nano- microfabrication (MOCVD, MBE, PVD etc.), semiconductor nanowire device fabrication, and nanowire-based sensors. He is the founder of the Advanced Micro- and Nano-Devices Laboratory.

Education Information

Doctorate, Case Western Reserve University, College of Engineering, Materials Science and Engineering, United States Of America 1996 - 2001
Postgraduate, The Ohio State University, College of Engineering, Materials Science and Engineering, United States Of America 1994 - 1996
Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Metallurgical And Materials Engineering, Turkey 1988 - 1993

Research Areas

Optoelectronic Materials and Devices, Semiconducting Materials and Devices, Material science and engineering, Engineering and Technology

Academic Titles / Tasks

Professor, Marmara University, Faculty of Engineering, Metallurgical and Material Engineering, 2020 - Continues
Professor, Istanbul Sehir University, Faculty Of Engıneerıng And Natural Scıences, Department Of Electrıcal And Electronıcs Engıneerıng, 2016 - 2020
Associate Professor, Istanbul Sehir University, Faculty Of Engıneerıng And Natural Scıences, 2012 - 2016
Associate Professor, Frostburg State University, Physics and Engineering, 2011 - 2014
Assistant Professor, Frostburg State University, Physics and Engineering, 2005 - 2011
Researcher, University of Delaware, Electrical and Computer Engineering, 2003 - 2005

Engineer, International Quantum Epitaxy (IQE), Inc., 2001 - 2003

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Photoinduced polarity shift of in-situ nitrogen-doped silicon carbide nanowire phototransistors**
TEKER K., ZİYAL M. İ.
Optics and Laser Technology, vol.170, 2024 (SCI-Expanded)

II. **Enhanced Photoresponse of a Self-Powered Gallium Nitride Photodetector via Sequentially-Deposited Gold Nanoparticles for Sustainable Optoelectronics**
Teker T. U., TEKER K.
Journal of Electronic Materials, vol.52, no.4, pp.2372-2379, 2023 (SCI-Expanded)

III. **Self-powered silicon carbide ultraviolet photodetector via gold nanoparticle plasmons for sustainable optoelectronic applications**
YILDIRIM M. A., TEKER K.
PHYSICA SCRIPTA, vol.97, no.11, 2022 (SCI-Expanded)

IV. **3C-SiC/Si heterostructure for self-powered multiband (UV-VIS) photodetection applications**
Tamay I. M., TEKER K.
PHYSICA SCRIPTA, vol.97, no.11, 2022 (SCI-Expanded)

V. **Self-powered high-performance flexible aluminum nitride nanowire deep ultraviolet photodetector**
Ozdemir Y. B., TEKER K.
APPLIED PHYSICS B-LASERS AND OPTICS, vol.128, no.9, 2022 (SCI-Expanded)

VI. **Investigation of pH Effect on the Performance of Undoped Silicon Carbide Nanowire Field-Effect Transistors for the Development of Chemical Sensors and Biosensors**
Mousa H., Awais M., TEKER K.
JOURNAL OF ELECTRONIC MATERIALS, vol.51, no.5, pp.2062-2069, 2022 (SCI-Expanded)

VII. **Low-Power Operating Aluminum Nitride Nanowire-Film Ultraviolet Photodetector**
TEKER K.
Journal of Nano Research, vol.74, pp.25-34, 2022 (SCI-Expanded)

VIII. **High-transconductance silicon carbide nanowire-based field-effect transistor (SiC-NWFET) for high-temperature applications**
Mousa H., TEKER K.
MICROELECTRONICS INTERNATIONAL, vol.38, no.2, pp.78-83, 2021 (SCI-Expanded)

IX. **Self-powered fine-pattern flexible SiC single nanowire ultraviolet photodetector**
YILDIRIM M. A., TEKER K.
JOURNAL OF ALLOYS AND COMPOUNDS, vol.868, 2021 (SCI-Expanded)

X. **High-responsivity flexible ultraviolet photodetector via single aluminum nitride nanowire**
Ozdemir Y. B., TEKER K., YILDIRIM M. A.
OPTICAL ENGINEERING, vol.60, no.5, 2021 (SCI-Expanded)

XI. **Transport Characteristics of Gallium Nitride Nanowire Field-Effect Transistor (GaN-NWFET) for High Temperature Electronics**
Yildirim M. A., TEKER K.
NANO, vol.16, no.2, 2021 (SCI-Expanded)

XII. **Effect of pH on transport characteristics of silicon carbide nanowire field-effect transistor (SiCNW-FET)**
Awais M., Mousa H., TEKER K.
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, vol.32, no.3, pp.3431-3436, 2021 (SCI-Expanded)

XIII. **Improving detectivity of self-powered GaN ultraviolet photodetector by nickel nanoparticles**
Teker K., Hocaoglu A., Yildirim M. A.
APPLIED PHYSICS B-LASERS AND OPTICS, vol.127, no.1, 2021 (SCI-Expanded)

XIV. **Impact of gold nanoparticles on low-voltage operating GaN ultraviolet photodetector**
TEKER K., Alkhaldi A.
OPTICAL ENGINEERING, vol.59, no.12, 2020 (SCI-Expanded)

XV. **Low-Power-Operating 3C-SiC Ultraviolet Photodetector forElevated Temperature Applications**
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JOURNAL OF ELECTRONIC MATERIALS, vol.49, no.6, pp.3813-3818, 2020 (SCI-Expanded)

XVI. **Performance enhancement of 3C-SiC thin film UV photodetector via gold nanoparticles**
Mousa H., Yildirim M. A., Teker K.
SEMICONDUCTOR SCIENCE AND TECHNOLOGY, vol.34, no.9, 2019 (SCI-Expanded)

XVII. **UV-induced photosensing characteristics of SiC and GaN nanowires**
Teker K., Ali Y. A., Uzun A.
SENSOR REVIEW, vol.39, no.4, pp.488-494, 2019 (SCI-Expanded)

XVIII. **Impact of channel scaling on performance of single SiC nanowire UV photodetector**
Uzun A., Teker K.
JOURNAL OF NANOPHOTONICS, vol.13, no.2, 2019 (SCI-Expanded)

XIX. **Fabrication of ultraviolet photodetector with aluminum nitride nanowire networks via direct transfer method**
Ali Y. A., Teker K.
MICROELECTRONIC ENGINEERING, vol.211, pp.26-28, 2019 (SCI-Expanded)

XX. **Silicon carbide nanowire field effect transistors with high on/off current ratio**
Uzun A., Teker K.
MICROELECTRONIC ENGINEERING, vol.205, pp.59-62, 2019 (SCI-Expanded)

XXI. **Dielectrophoretic Assembly of Aluminum Nitride (AlN) Single Nanowire Deep Ultraviolet Photodetector**
Teker K.
JOURNAL OF NANO RESEARCH, vol.60, pp.86-93, 2019 (SCI-Expanded)

XXII. **An Ultra-Sensitive Optical Ring-Based Micro-Resonator Model towards Nanoparticle and Protein Detection**
Ahmeti F., Teker K.
JOURNAL OF NANO RESEARCH, vol.55, pp.57-65, 2018 (SCI-Expanded)

XXIII. **Photoresponse characteristics of silicon carbide nanowires**
Teker K.
MICROELECTRONIC ENGINEERING, vol.162, pp.79-81, 2016 (SCI-Expanded)

XXIV. **Single source fabrication of SiC nanowires and FTIR spectroscopy**
Teker K., Abdurazik D.
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XXV. **Aluminium nitride nanowire array films for nanomanufacturing applications**
Teker K.
MATERIALS SCIENCE AND TECHNOLOGY, vol.31, no.15, pp.1832-1836, 2015 (SCI-Expanded)

XXVI. **Gallium nitride nanowire devices and photoelectric properties**
Teker K.
SENSORS AND ACTUATORS A-PHYSICAL, vol.216, pp.142-146, 2014 (SCI-Expanded)

XXVII. **Density and morphology adjustments of gallium nitride nanowires**
Teker K.
APPLIED SURFACE SCIENCE, vol.283, pp.1065-1070, 2013 (SCI-Expanded)

XXVIII. **Bioconjugated carbon nanotubes for targeting cancer biomarkers**
Teker K.
MATERIALS SCIENCE AND ENGINEERING B-ADVANCED FUNCTIONAL SOLID-STATE MATERIALS, vol.153, pp.83-87, 2008 (SCI-Expanded)

XXIX. **Biomolecular tuning of electronic transport properties of carbon nanotubes via antibody functionalization**

Teker K., Wickstrom E., Panchapakesan B.
IEEE SENSORS JOURNAL, vol.6, no.6, pp.1422-1428, 2006 (SCI-Expanded)

XXX. **Selective epitaxial growth of 3C-SiC on patterned Si using hexamethyldisilane by APCVD**
Teker K.
JOURNAL OF CRYSTAL GROWTH, vol.257, pp.245-254, 2003 (SCI-Expanded)

XXXI. **Epitaxial growth of 3C-SiC on Si(001) using hexamethyldisilane and comparison with growth on Si(111)**
Teker K., Jacob C., Chung J., Hong M.
THIN SOLID FILMS, vol.371, pp.53-60, 2000 (SCI-Expanded)

Articles Published in Other Journals

I. **Direct Transfer Manufacturing of Flexible Silicon Carbide Nanowire-Network Prototype Device**
Onder M. S., TEKER K.
NANO HYBRIDS AND COMPOSITES, vol.37, pp.49-58, 2022 (ESCI)

II. **Confocal Microscopy of Bioconjugated Carbon Nanotubes for Biosensor Applications**
Teker K.
Sensors & Transducers Journal, vol.88, no.2, pp.1-8, 2008 (Peer-Reviewed Journal)

III. **Single-wall carbon nanotubes with adsorbed antibodies detect live breast cancer cells**
Teker K.
Nanobiotechnology, vol.1, no.4, pp.353-360, 2005 (Peer-Reviewed Journal)

IV. **Single-wall carbon nanotube nanobomb agents for killing breast cancer cells**
Teker K.
Nanobiotechnology, vol.1, no.2, pp.133-139, 2005 (Peer-Reviewed Journal)

V. **Applications of carbon nanotubes for cancer research**
Teker K.
Nanobiotechnology, vol.1, no.2, pp.171-182, 2005 (Peer-Reviewed Journal)

VI. **Epitaxial growth of SiC on AlN/Sapphire using hexamethyldisilane by MOVPE**
Teker K., Lee K. H., Pirouz P., Jacob C., Nishino S.
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I. **Small Channel-Length SiC Nanowire Field-Effect Transistors**
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2018 MRS Fall Meeting- Boston U.S.A , Massachusetts, United States Of America, 25 - 30 November 2018, pp.1542-1543

II. **: Gallium Nitride Nanowire Field Effect Transistor for High Temperature Applications**
Yildirim M. A., Teker K.
2020 Materials Research Society Fall Meeting, Massachusetts, United States Of America, 28 November - 04 December 2020, pp.4-5

III. **Fabrication of a Fine-Pattern Flexible Nanowire Photodetector by Shadow Mask**
Yildirim M. A., Teker K.
2020 Materials Research Society Fall Meeting, Massachusetts, United States Of America, 28 November - 04 December 2020, pp.7-8

IV. **Aluminum Nitride Nanowire Flexible Ultraviolet Photodetectors**
Ali Y. A., Teker K.
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V. **Indium nitride nanowire growth by chemical vapor deposition and electrical characterization**
Teker K., Ali Y. A., Otto J.
11th Annual TechConnect World Innovation Conference and Expo, Held Jointly with the 20th Annual Nanotech Conference and Expo, and the 2017 National SBIR/STTR Conference, Washington, United States Of America, 14 - 17 May 2017, vol.4, pp.198-201

VI. **A model for an Optical Ring Micro resonator towards Nanoparticle Detection**
Ahmeti F., Teker K.
11th Annual TechConnect World Innovation Conference and Expo, Held Jointly with the 20th Annual Nanotech Conference and Expo, and the 2017 National SBIR/STTR Conference, Washington, United States Of America, 14 - 17 May 2017, vol.3, pp.254-257

VII. **Fourier transform infrared spectroscopy of silicon carbide nanowires**
Teker K., Abdurazik D.
10th Annual TechConnect World Innovation Conference and Expo, Held Jointly with the 19th Annual Nanotech Conference and Expo, and the 2016 National SBIR/STTR Conference, Washington, United States Of America, 22 - 25 May 2016, vol.4, pp.51-54

VIII. **Photoconductivity of GaN nanowires**
Teker K., Otto J., Siemann A.
Nanotechnology 2013: Electronics, Devices, Fabrication, MEMS, Fluidics and Computational - 2013 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2013, Washington, United States Of America, 12 - 16 May 2013, vol.2, pp.60-63

IX. **Photoconductivity of Catalyst-Free Grown Aluminum Nitride Nanowires**
Teker K., Otto J., Siemann A.
Conference on Nanotechnology VI, Grenoble, France, 24 - 25 April 2013, vol.8766

X. **Morphology variations of GaN nanowires and devices**
Teker K., Otto J.
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XI. **Manipulating 3C-SiC nanowire morphology through gas flow dynamics**
Teker K., Otto J. M.
2011 MRS Fall Meeting, Boston, MA, United States Of America, 28 November - 02 December 2011, vol.1396, pp.237-242

XII. **Comparison of aluminum nitride nanowire growth with and without catalysts via chemical vapor deposition**
Teker K., Oxenham J. A.
2011 MRS Spring Meeting, San Francisco, CA, United States Of America, 25 - 29 April 2011, vol.1324, pp.17-22

XIII. **Transition from microscale-faceted structures to ultra-dense GaN nanowires**
Teker K., Oxenham J. A.
2010 MRS Fall Meeting, Boston, MA, United States Of America, 29 November - 03 December 2010, vol.1302, pp.31-36

XIV. **Growth of ultra-high density 3C-SiC nanowires via single source CVD**
Teker K., Oxenham J. A.
2011 MRS Spring Meeting, San Francisco, CA, United States Of America, 25 - 29 April 2011, vol.1350, pp.63-68

XV. **The impact of hands-on experience in undergraduate nanotechnology education**
Oxenham J. A., Teker K.
2010 MRS Fall Meeting, Boston, MA, United States Of America, 29 November - 03 December 2010, vol.1320, pp.42-47

XVI. **A scheme for blocking non-specific antibody binding on single wall carbon nanotubes**
Teker K.
2008 MRS Spring Meeting, San Francisco, CA, United States Of America, 24 - 28 March 2008, vol.1092, pp.8-13

XVII. **Detection of live breast cancer cells using carbon nanotube devices**
Teker K., Cesarone G., Wickstrom E., Panchapakesan B.

2006 NSTI Nanotechnology Conference and Trade Show - NSTI Nanotech 2006 Technical Proceedings, Boston, MA, United States Of America, 7 - 11 May 2006, vol.2, pp.33-36

XVIII. **Single wall carbon nanotubes with adsorbed monoclonal antibodies detect breast cancer cells.**
Panchapakesan B., Cesarone G., Teker K., Wickstrom E.
AACR/NCI/EORTC International Conference on Molecular Targets and Cancer Therapeutics, Pennsylvania, United States Of America, 14 - 18 November 2005, vol.11

XIX. **Electronic sensing of antibodies using carbon nanotube devices**
Teker K., Sivakumar K., Wickstro E., Panchapakesan B.
2005 NSTI Nanotechnology Conference and Trade Show - NSTI Nanotech 2005, Anaheim, CA, United States Of America, 8 - 12 May 2005, pp.43-46

XX. **Antibody functionalization of carbon nanotubes for breast cancer applications**
Teker K., Sirdeshmukh R., Panchapakesan B.
IEEE Sensors 2004, Vienna, Austria, 24 - 27 October 2004, vol.2, pp.814-817

XXI. **Functionalization of carbon nanotubes with antibodies for breast cancer detection applications**
Sirdeshmukh R., Teker K., Panchapakesan B.
Proceedings - 2004 International Conference on MEMS, NANO and Smart Systems, ICMENS 2004, Banff, Canada, 25 - 27 August 2004, pp.47-52

XXII. **Biological functionalization of carbon nanotubes**
Sirdeshmukh R., Teker K., Panchapakesan B.
Biological and Bioinspired Materials and Devices, San Francisco, CA, United States Of America, 13 - 16 April 2004, vol.823, pp.133-138

XXIII. **Production of next generation InP-HBT epiwafers by MBE**
Lubyshev D., Malis O., Teker K., Wu Y., Fastenau J., Fang X., Doss C., Cornfeld A., Liu W.
2003 International Conference Indium Phosphide and Related Materials, Santa Barbara, CA, United States Of America, 12 - 16 May 2003, pp.385-388

XXIV. **Effect of TMG addition on the epitaxial growth of 3C-SiC on Si(100) and Si(111) using hexamethyldisilane**
Lee K., Teker K., Zhang M., Chung J., Pirouz P.
Silicon Carbide- Materials, Processing and Devices, Boston, MA, United States Of America, 27 - 29 November 2000, vol.640

XXV. **Epitaxial growth of SiC on AlN/Sapphire using hexamethyldisilane by MOVPE**
Teker K., Lee K., Jacob C., Nishino S., Pirouz P.
Silicon Carbide- Materials, Processing and Devices, Boston, MA, United States Of America, 27 - 29 November 2000, vol.640

XXVI. **Comparison of different substrate pre-treatments on the quality of gan film growth on 6H-, 4H-, and 3C-SiC**
Lee K., Hong M., Teker K., Jacob C., Pirouz P.
Wide-Bandgap Electronic Devices, San Francisco, CA, United States Of America, 24 - 27 April 2000, vol.622

Metrics

Publication: 64
Citation (WoS): 168
Citation (Scopus): 220
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H-Index (Scopus): 9