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Education Information

Post Doctorate, Ohio State University, Electrical And Computer Engineering, United States Of America 2016 - 2017

Doctorate, Ohio State University, Electrical And Computer Engineering, United States Of America 2011 - 2016

Postgraduate, Ohio State University, Electrical And Computer Engineering, United States Of America 2009 - 2011

Undergraduate, Gaziantep Üniversitesi, Elektrik - Elektronik Muh., Turkey 2003 - 2008

Foreign Languages

German, A1 Beginner

English, C1 Advanced

Dissertations

Doctorate, Nanoscale Electron Transport Engineering for GaN Optoelectronic Devices, Ohio State University, Electrical And Computer Engineering, Faculty Of Engineering, 2016

Postgraduate, N-Polar III-Nitride Optoelectronic Devices, Ohio State University, Electrical And Computer Engineering, Faculty Of Engineering, 2011

Research Areas

Electrical and Electronics Engineering, Optoelectronic Materials and Devices, Semiconducting Materials and Devices, Nanomaterials, Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Yildiz Technical University, Faculty Of Chemical And Metallurgical Engineering, Department Of Metallurgical And Materials Engineering, 2018 - Continues

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

1. Simulation of beta-Ga₂O₃ vertical Schottky diode based photodetectors revealing average hole mobility of 20cm²V⁽⁻¹⁾s⁽⁻¹⁾
AKYOL F.

JOURNAL OF APPLIED PHYSICS, vol.127, no.7, 2020 (Journal Indexed in SCI)

- II. **Tunnel-injected sub 290 nm ultra-violet light emitting diodes with 2.8% external quantum efficiency**
Zhang Y., Jamal-Eddine Z., Akyol F., Bajaj S., Johnson J. M. , Calderon G., ALLERMAN A. A. , MOSELEY M. W. , ARMSTRONG A. M. , Hwang J., et al.
APPLIED PHYSICS LETTERS, vol.112, no.7, 2018 (Journal Indexed in SCI)
- III. **High Al-Content AlGa_N Transistor With 0.5 A/mm Current Density and Lateral Breakdown Field Exceeding 3.6 MV/cm**
Bajaj S., ALLERMAN A., ARMSTRONG A., Razzak T., Talesara V., Sun W., Soheli S. H. , Zhang Y., Lu W., Arehart A. R. , et al.
IEEE ELECTRON DEVICE LETTERS, vol.39, no.2, pp.256-259, 2018 (Journal Indexed in SCI)
- IV. **Ultralow-voltage-drop GaN/InGa_N/GaN tunnel junctions with 12% indium content**
Akyol F., Zhang Y., Krishnamoorthy S., Rajan S.
APPLIED PHYSICS EXPRESS, vol.10, no.12, 2017 (Journal Indexed in SCI)
- V. **Graded AlGa_N Channel Transistors for Improved Current and Power Gain Linearity**
Bajaj S., Yang Z., Akyol F., PARK P. S. , Zhang Y., Price A. L. , Krishnamoorthy S., MEYER D. J. , Rajan S.
IEEE TRANSACTIONS ON ELECTRON DEVICES, vol.64, no.8, pp.3114-3119, 2017 (Journal Indexed in SCI)
- VI. **Reflective metal/semiconductor tunnel junctions for hole injection in AlGa_N UV LEDs**
Zhang Y., Krishnamoorthy S., Akyol F., Johnson J. M. , ALLERMAN A. A. , MOSELEY M. W. , ARMSTRONG A. M. , Hwang J., Rajan S.
APPLIED PHYSICS LETTERS, vol.111, no.5, 2017 (Journal Indexed in SCI)
- VII. **Tunnel-injected sub-260nm ultraviolet light emitting diodes**
Zhang Y., Krishnamoorthy S., Akyol F., Bajaj S., ALLERMAN A. A. , MOSELEY M. W. , ARMSTRONG A. M. , Rajan S.
APPLIED PHYSICS LETTERS, vol.110, no.20, 2017 (Journal Indexed in SCI)
- VIII. **Design of p-type cladding layers for tunnel-injected UV-A light emitting diodes**
Zhang Y., Krishnamoorthy S., Akyol F., ALLERMAN A. A. , MOSELEY M. W. , ARMSTRONG A. M. , Rajan S.
APPLIED PHYSICS LETTERS, vol.109, no.19, 2016 (Journal Indexed in SCI)
- IX. **AlGa_N channel field effect transistors with graded heterostructure ohmic contacts**
Bajaj S., Akyol F., Krishnamoorthy S., Zhang Y., Rajan S.
APPLIED PHYSICS LETTERS, vol.109, no.13, 2016 (Journal Indexed in SCI)
- X. **Design and demonstration of ultra-wide bandgap AlGa_N tunnel junctions**
Zhang Y., Krishnamoorthy S., Akyol F., ALLERMAN A. A. , MOSELEY M. W. , ARMSTRONG A. M. , Rajan S.
APPLIED PHYSICS LETTERS, vol.109, no.12, 2016 (Journal Indexed in SCI)
- XI. **Enhanced light extraction in tunnel junction-enabled top emitting UV LEDs**
Zhang Y., ALLERMAN A. A. , Krishnamoorthy S., Akyol F., MOSELEY M. W. , ARMSTRONG A. M. , Rajan S.
APPLIED PHYSICS EXPRESS, vol.9, no.5, 2016 (Journal Indexed in SCI)
- XII. **Low-resistance Ga_N tunnel homojunctions with 150 kA/cm² current and repeatable negative differential resistance**
Akyol F., Krishnamoorthy S., Zhang Y., Johnson J., Hwang J., Rajan S.
APPLIED PHYSICS LETTERS, vol.108, no.13, 2016 (Journal Indexed in SCI)
- XIII. **Density-dependent electron transport and precise modeling of Ga_N high electron mobility transistors**
Bajaj S., Shoron O. F. , Park P. S. , Krishnamoorthy S., Akyol F., Hung T., REZA S., CHUMBES E. M. , Khurgin J., Rajan S.
APPLIED PHYSICS LETTERS, vol.107, no.15, 2015 (Journal Indexed in SCI)
- XIV. **GaN-based three-junction cascaded light-emitting diode with low-resistance InGa_N tunnel junctions**
Akyol F., Krishnamoorthy S., Zhang Y., Rajan S.
APPLIED PHYSICS EXPRESS, vol.8, no.8, 2015 (Journal Indexed in SCI)
- XV. **Interband tunneling for hole injection in III-nitride ultraviolet emitters**
Zhang Y., Krishnamoorthy S., Johnson J. M. , Akyol F., ALLERMAN A., MOSELEY M. W. , ARMSTRONG A., Hwang J., Rajan S.
APPLIED PHYSICS LETTERS, vol.106, no.14, 2015 (Journal Indexed in SCI)
- XVI. **InGa_N/Ga_N tunnel junctions for hole injection in Ga_N light emitting diodes**

Krishnamoorthy S., Akyol F., Rajan S.

APPLIED PHYSICS LETTERS, vol.105, no.14, 2014 (Journal Indexed in SCI)

XVII. Tunneling-based carrier regeneration in cascaded GaN light emitting diodes to overcome efficiency droop

Akyol F., Krishnamoorthy S., Rajan S.

APPLIED PHYSICS LETTERS, vol.103, no.8, 2013 (Journal Indexed in SCI)

XVIII. Low resistance GaN/InGaN/GaN tunnel junctions

Krishnamoorthy S., Akyol F., Park P. S., Rajan S.

APPLIED PHYSICS LETTERS, vol.102, no.11, 2013 (Journal Indexed in SCI)

XIX. Polarization-engineered GaN/InGaN/GaN tunnel diodes

Krishnamoorthy S., Nath D. N., Akyol F., Park P. S., Esposito M., Rajan S.

APPLIED PHYSICS LETTERS, vol.97, no.20, 2010 (Journal Indexed in SCI)

Articles Published in Other Journals

I. Investigating the effect of self-trapped holes in the current gain mechanism of beta-Ga₂O₃ Schottky diode photodetectors

AKYOL F.

TURKISH JOURNAL OF PHYSICS, vol.45, no.3, pp.169-177, 2021 (Journal Indexed in ESCI)

Books & Book Chapters

I. Gallium Nitride–Based Interband Tunnel Junctions

AKYOL F.

in: Gallium Nitride (GaN) Physics, Devices, and Technology, Farid Medjdoub, Editor, Crc Press, Florida, Boca Raton, pp.299-326, 2017

Refereed Congress / Symposium Publications in Proceedings

I. Growth of single crystal Ga₂O₃ by customized low pressure chemical deposition

AKYOL F.

Global conference on Material Sciences, İstanbul, Turkey, 30 October - 01 November 2020

II. Tunnel-injected ultraviolet light-emitting diodes (Conference Presentation)

RAJAN S., ZHANG Y., JAMAL EDDIE Z., AKYOL F., HWANG J., JOHNSON J.

Gallium Nitride Materials and Devices XIII, San Francisco, United States, United States Of America, 27 January - 01 February 2018, vol.10532

III. Small-Signal Characteristics of Graded AlGa_n Channel PoIFETs

BAJAJ S., YANG Z., AKYOL F., PARK P. S., ZHANG Y., SOHEL S. H., KRISHNAMOORTHY S., MEYER D. J., RAJAN S.

2017 75TH ANNUAL DEVICE RESEARCH CONFERENCE (DRC), South Bend, 25 - 28 June 2017

IV. Ultra-Wide Bandgap AlGa_n Channel MISFET with Polarization Engineered Ohmics

BAJAJ S., AKYOL F., KRISHNAMOORTHY S., ZHANG Y., ARMSTRONG A., ALTERMAN A., RAJAN S.

2016 74TH ANNUAL DEVICE RESEARCH CONFERENCE (DRC), Newark, 19 - 22 June 2016

V. Sub 300 nm Wavelength III-Nitride Tunnel-Injected Ultraviolet LEDs

ZHANG Y., KRISHNAMOORTHY S., AKYOL F., KHANDAKER S., ALLERMAN A., MOSELEY M. W., ARMSTRONG A., RAJAN S.

2015 73RD ANNUAL DEVICE RESEARCH CONFERENCE (DRC), Columbus, 21 - 24 June 2015, pp.69-70

VI. Density-Dependent Electron Transport for Accurate Modeling of AlGa_n/Ga_n HEMTs

BAJAJ S., SHORON O. F., PARK P. S., KRISHNAMOORTHY S., AKYOL F., HUNG T. H., REZA S., CHUMBES E. M.,

KHURGİN J. B. , RAJAN S.

2015 73RD ANNUAL DEVICE RESEARCH CONFERENCE (DRC), Columbus, 21 - 24 June 2015, pp.33-34

VII. Power Switching Transistors Based on GaN and AlGaN Channels

Bajaj S., Hung T., Akyol F., Krishnamoorthy S., Khandaker S., ARMSTRONG A., ALLERMAN A., Rajan S.

3rd IEEE Workshop on Wide Bandgap Power Devices and Applications (WiPDA), Virginia, United States Of America, 2 - 04 November 2015, pp.16-20

VIII. III-nitride tunnel junctions for efficient solid state lighting

Krishnamoorthy S., Akyol F., Rajan S.

Conference on Gallium Nitride Materials and Devices IX, San-Francisco, Costa Rica, 3 - 06 February 2014, vol.8986

Supported Projects

Akyol F., Demir I., TÜBİTAK - AB COST Project, European Network for Innovative and Advanced Epitaxy, 2021 - 2026

Akyol F., TÜBİTAK Project, Monoklinik Galyum Oksit (β -Ga₂O₃) Tabakalarının 4h- Silisyum Karbür (SiC) Üzerine Epitaksiyel Elde Edilmesi, 2021 - 2022

Akyol F., TÜBİTAK Project, Low Pressure Chemical Vapor Deposition of Ga₂O₃, 2019 - 2022

Patent

Akyol F., TUNNEL JUNCTION ULTRAVIOLET LIGHT EMITTING DIODES WITH ENHANCED LIGHT EXTRACTION EFFICIENCY, Patent, CHAPTER H Electricity, The Invention Registration Number: WO 2018/204402 A1 , Initial Registration, 2018

Citations

Total Citations (WOS):609

h-index (WOS):16