

## Personal Information

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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

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

Under Graduate, 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

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

## Research Areas

Electrical and Electronics Engineering, Energy, Lighting Technology, Metallurgical and Materials Engineering, Material science and engineering, Semiconductor and Superconductor Materials, Nanomaterials, Engineering and Technology

## Academic Titles / Tasks

Assistant Professor, Yıldız Technical University, Metalurji Ve Malzeme Mühendisliği, 2018 - Continues

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

- **Simulation of beta-Ga<sub>2</sub>O<sub>3</sub> vertical Schottky diode based photodetectors revealing average hole mobility of 20cm<sup>2</sup>V<sup>(-1)</sup>s<sup>(-1)</sup>**  
AKYOL F.  
JOURNAL OF APPLIED PHYSICS, vol.127, 2020 (Journal Indexed in SCI)
- **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, 2018 (Journal Indexed in SCI)
- **High Al-Content AlGaN 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., Sohel S. H. , Zhang Y., Lu W., Arehart A. R. , et al.

IEEE ELECTRON DEVICE LETTERS, vol.39, pp.256-259, 2018 (Journal Indexed in SCI)

- **Ultralow-voltage-drop GaN/InGaN/GaN tunnel junctions with 12% indium content**  
Akyol F., Zhang Y., Krishnamoorthy S., Rajan S.  
APPLIED PHYSICS EXPRESS, vol.10, 2017 (Journal Indexed in SCI)
- **Graded AlGaIn 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, pp.3114-3119, 2017 (Journal Indexed in SCI)
- **Reflective metal/semiconductor tunnel junctions for hole injection in AlGaIn 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, 2017 (Journal Indexed in SCI)
- **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, 2017 (Journal Indexed in SCI)
- **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, 2016 (Journal Indexed in SCI)
- **AlGaIn channel field effect transistors with graded heterostructure ohmic contacts**  
Bajaj S., Akyol F., Krishnamoorthy S., Zhang Y., Rajan S.  
APPLIED PHYSICS LETTERS, vol.109, 2016 (Journal Indexed in SCI)
- **Design and demonstration of ultra-wide bandgap AlGaIn tunnel junctions**  
Zhang Y., Krishnamoorthy S., Akyol F., ALLERMAN A. A. , MOSELEY M. W. , ARMSTRONG A. M. , Rajan S.  
APPLIED PHYSICS LETTERS, vol.109, 2016 (Journal Indexed in SCI)
- **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, 2016 (Journal Indexed in SCI)
- **Low-resistance GaN tunnel homojunctions with 150 kA/cm<sup>2</sup> current and repeatable negative differential resistance**  
Akyol F., Krishnamoorthy S., Zhang Y., Johnson J., Hwang J., Rajan S.  
APPLIED PHYSICS LETTERS, vol.108, 2016 (Journal Indexed in SCI)
- **Density-dependent electron transport and precise modeling of GaN 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, 2015 (Journal Indexed in SCI)
- **GaN-based three-junction cascaded light-emitting diode with low-resistance InGaIn tunnel junctions**  
Akyol F., Krishnamoorthy S., Zhang Y., Rajan S.  
APPLIED PHYSICS EXPRESS, vol.8, 2015 (Journal Indexed in SCI)
- **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, 2015 (Journal Indexed in SCI)
- **InGaIn/GaN tunnel junctions for hole injection in GaN light emitting diodes**  
Krishnamoorthy S., Akyol F., Rajan S.  
APPLIED PHYSICS LETTERS, vol.105, 2014 (Journal Indexed in SCI)
- **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, 2013 (Journal Indexed in SCI)
- **Low resistance GaN/InGaIn/GaN tunnel junctions**  
Krishnamoorthy S., Akyol F., Park P. S. , Rajan S.  
APPLIED PHYSICS LETTERS, vol.102, 2013 (Journal Indexed in SCI)
- **Polarization-engineered GaN/InGaIn/GaN tunnel diodes**

## Book & Book Chapters

- **in: Gallium Nitride (GaN) Physics, Devices, and Technology**  
AKYOL F.  
Gallium Nitride–Based Interband Tunnel Junctions, Farid Medjdoub, Editor, Crc Press, Florida, Boca Raton, pp.299-326, 2017

## Refereed Congress / Symposium Publications in Proceedings

- **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 Ocak - 01 Şubat 2018, vol.10532
- **Small-Signal Characteristics of Graded AlGaIn 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 Haziran 2017
- **Ultra-Wide Bandgap AlGaIn Channel MISFET with Polarization Engineered Ohmics**  
BAJAJ S., AKYOL F., KRISHNAMOORTHY S., ZHANG Y., ARMSTRONG A., ALLERMAN A., RAJAN S.  
2016 74TH ANNUAL DEVICE RESEARCH CONFERENCE (DRC), Newark, 19 - 22 Haziran 2016
- **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 Haziran 2015, pp.69-70
- **Density-Dependent Electron Transport for Accurate Modeling of AlGaIn/GaN HEMTs**  
BAJAJ S., SHORON O. F. , PARK P. S. , KRISHNAMOORTHY S., AKYOL F., HUNG T. H. , REZA S., CHUMBES E. M. , KHURGIN J. B. , RAJAN S.  
2015 73RD ANNUAL DEVICE RESEARCH CONFERENCE (DRC), Columbus, 21 - 24 Haziran 2015, pp.33-34
- **Power Switching Transistors Based on GaN and AlGaIn 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
- **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

## Citations

Total Citations (WOS):541

h-index (WOS):15