

Prof. MUSTAFA ALEVLİ

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International Researcher IDs

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Publons / Web Of Science ResearcherID: A-2006-2013

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Education Information

Doctorate, Georgia State University, Physics & Astronomy, United States Of America 2004 - 2008

Postgraduate, Georgia State University, Physics&Astronomy, United States Of America 2001 - 2004

Postgraduate, Marmara University, Institute for Graduate Studies in Pure and Applied Sciences, Fizik (YI) (Tezli), Turkey 1998 - 2001

Undergraduate, Marmara University, Faculty of Arts and Sciences, Physics, Turkey 1994 - 1998

Dissertations

Doctorate, Growth and characterization of indium nitride layers grown by high-pressure chemical vapor deposition, Georgia State University, Physics & Astronomy, 2005

Postgraduate, Titanyum atomunun toplam ve kısmi fotoiyonlaşma tesir kesiti hesapları, Marmara Üniversitesi, Institute for Graduate Studies in Pure and Applied Sciences, Fizik (YI) (Tezli), 2001

Postgraduate, Cut off wavelength dependence on doping concentration for highly doped p-type GaAs detector structures, Georgia State University, Physics&Astronomy, 2001

Research Areas

Printed Circuits, Thin Film, Thick Film and Hybrid ICs, Sensing Devices and Transducers, Nanotechnology, Optics and Photonics, Lighting Technology, Renewable energy, Dielectric Materials and Devices, Optical Materials and Devices, Optoelectronic Materials and Devices, Semiconducting Materials and Devices, Solar energy, Physics, Atomic Spectra and Photon Interactions, Molecular Properties and Interactions with Photon, Interdisciplinary Physics and Related Science and Technology Areas, Optics, Condensed Matter 1: Structural, Mechanical and Thermal Properties

Academic Titles / Tasks

Professor, Marmara University, Faculty of Arts and Sciences, Physics, 2019 - Continues

Associate Professor, Marmara University, Faculty of Arts and Sciences, 2013 - 2019

Assistant Professor, Marmara University, Faculty of Arts and Sciences, Physics, 2011 - 2013

Expert, Ihsan Dogramaci Bilkent University, National Nanotechnology Research Center, 2010 - 2011

Lecturer PhD, University of Nevada, Las Vegas, Harry Reid Center For Enviromental Studies, 2010 - 2010

Lecturer, Georgia State University, College Of Arts And Sciences, Physics And Astronomy, 2008 - 2010
Research Assistant, Georgia State University, College Of Arts & Sciences, Physics & Astronomy, 2001 - 2008
Research Assistant, Marmara University, Faculty of Arts and Sciences, Physics, 1998 - 2001

Academic and Administrative Experience

Marmara University, Institute for Graduate Studies in Pure and Applied Sciences, Fizik (YI) (Tezli) (İngilizce), 2011 - Continues

Advising Theses

Alevli M., Optical Properties of Group III Nitride Thin films grown by hollow cathode plasma assisted atomic layer deposition, Doctorate, N.Güngör(Student), 2019

ALEVLİ M., Optical properties of group III-nitride thin films grown by hollow cathode plasma assisted atomic layer deposition, Doctorate, N.Güngör(Student), 2019

ALEVLİ M., Plazma ile etkilendirilmiş atomik katman büyütme yöntemi ile büyütülen AlN ince filmlerin optik özellikleri, Postgraduate, N.GÜNGÖR(Student), 2013

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Incorporation Mechanism of Potassium in FAPbI₃ Perovskite Solar Cell Materials**
ALEVLİ M., Gungor N., KAVAK P., ŞAHİN N., Corcor A., Topal I., ESMER K., ÇAKMAKÇI E., DEĞER C., YAVUZ İ.
Journal of Physical Chemistry C, vol.128, no.7, pp.2759-2766, 2024 (SCI-Expanded)
- II. **Oxygen incorporation in AlN films grown by plasma-enhanced atomic layer deposition**
Gungor N., ALEVLİ M.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.40, no.2, 2022 (SCI-Expanded)
- III. **Effect of N-2/H-2 plasma on the growth of InN thin films on sapphire by hollow-cathode plasma-assisted atomic layer deposition**
ALEVLİ M., Gungor N.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.38, no.6, 2020 (SCI-Expanded)
- IV. **Visible/infrared refractive index and phonon properties of GaN films grown on sapphire by hollow-cathode plasma-assisted atomic layer deposition**
Gungor N., ALEVLİ M.
Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, vol.37, no.5, 2019 (SCI-Expanded)
- V. **Role of film thickness on the structural and optical properties of GaN on Si (100) grown by hollow-cathode plasma-assisted atomic layer deposition**
Gungor N., ALEVLİ M.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.36, no.2, 2018 (SCI-Expanded)
- VI. **Influence of N-2/H-2 and N-2 plasma on binary III-nitride films prepared by hollow-cathode plasma-assisted atomic layer deposition**
ALEVLİ M., Gungor N.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.36, no.1, 2018 (SCI-Expanded)
- VII. **Enhancement in c-Si solar cells using 16 nm InN nanoparticles**
Chowdhury F. I., Alnuaimi A., Alkis S., ORTAÇ B., Akturk S., ALEVLİ M., Dietz N., OKYAY A. K., Nayfeh A.
MATERIALS RESEARCH EXPRESS, vol.3, no.5, 2016 (SCI-Expanded)
- VIII. **Comparison of trimethylgallium and triethylgallium as "Ga" source materials for the growth of ultrathin GaN films on Si (100) substrates via hollow-cathode plasma-assisted atomic layer deposition**

- ALEVLİ M., Haider A., Kizir S., Leghari S. A., BIYIKLI N.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.34, no.1, 2016 (SCI-Expanded)
- IX. **Substrate temperature influence on the properties of GaN thin films grown by hollow-cathode plasma-assisted atomic layer deposition**
ALEVLİ M., Gungor N., Haider A., Kizir S., Leghari S. A., BIYIKLI N.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.34, no.1, 2016 (SCI-Expanded)
- X. **Enhancement of polycrystalline silicon solar cells efficiency using indium nitride particles**
Alkis S., Chowdhury F. I., ALEVLİ M., Dietz N., Yalizay B., Akturk S., Nayfeh A., OKYAY A. K.
JOURNAL OF OPTICS, vol.17, no.10, 2015 (SCI-Expanded)
- XI. **A Near-Infrared Range Photodetector Based on Indium Nitride Nanocrystals Obtained Through Laser Ablation**
Tekcan B., Alkis S., ALEVLİ M., Dietz N., ORTAÇ B., BIYIKLI N., OKYAY A. K.
IEEE ELECTRON DEVICE LETTERS, vol.35, no.9, pp.936-938, 2014 (SCI-Expanded)
- XII. **Enhanced memory effect via quantum confinement in 16nm InN nanoparticles embedded in ZnO charge trapping layer**
El-Atab N., Cimen F., Alkis S., Orta B., ALEVLİ M., Dietz N., OKYAY A. K., Nayfeh A.
APPLIED PHYSICS LETTERS, vol.104, no.25, 2014 (SCI-Expanded)
- XIII. **Thermal stability of InN epilayers grown by high pressure chemical vapor deposition**
Acharya A. R., Gamage S., Senevirathna M. K. I., ALEVLİ M., Bahadir K., Melton A. G., Ferguson I., Dietz N., Thoms B. D.
APPLIED SURFACE SCIENCE, vol.268, pp.1-5, 2013 (SCI-Expanded)
- XIV. **Generation of InN nanocrystals in organic solution through laser ablation of high pressure chemical vapor deposition-grown InN thin film**
Alkis S., ALEVLİ M., Burzhuev S., Vural H. A., OKYAY A. K., ORTAÇ B.
JOURNAL OF NANOPARTICLE RESEARCH, vol.14, no.8, 2012 (SCI-Expanded)
- XV. **Structural properties of AlN films deposited by plasma-enhanced atomic layer deposition at different growth temperatures**
Alevli M., Ozgit C., Donmez I., Biyikli N.
PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE, vol.209, pp.266-271, 2012 (SCI-Expanded)
- XVI. **Optical properties of AlN thin films grown by plasma enhanced atomic layer deposition**
Alevli M., Ozgit C., Donmez I., BIYIKLI N.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.30, no.2, 2012 (SCI-Expanded)
- XVII. **Self-limiting low-temperature growth of crystalline AlN thin films by plasma-enhanced atomic layer deposition**
Ozgit C., Donmez I., ALEVLİ M., BIYIKLI N.
THIN SOLID FILMS, vol.520, no.7, pp.2750-2755, 2012 (SCI-Expanded)
- XVIII. **Atomic layer deposition of GaN at low temperatures**
Ozgit C., Donmez I., ALEVLİ M., BIYIKLI N.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.30, no.1, 2012 (SCI-Expanded)
- XIX. **The Influence of Growth Temperature on the Properties of AlN Films Grown by Atomic Layer Deposition**
ALEVLİ M., Ozgit C., Donmez i.
ACTA PHYSICA POLONICA A, vol.120, 2011 (SCI-Expanded)
- XX. **The influence of N₂/H₂ and ammonia N source materials on optical and structural properties of AlN films grown by plasma enhanced atomic layer deposition**
ALEVLİ M., Ozgit C., Donmez I., BIYIKLI N.
JOURNAL OF CRYSTAL GROWTH, vol.335, no.1, pp.51-57, 2011 (SCI-Expanded)
- XXI. **Optical properties of InN grown on templates with controlled surface polarities**
Kirste R., Wagner M., Schulze J., Strittmatter A., Collazo R., Sitar Z., ALEVLİ M., Dietz N., Hoffmann A.
PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE, vol.207, no.10, pp.2351-2354, 2010 (SCI-Expanded)

- XXII. **The influence of the group V/III molar precursor ratio on the structural properties of InGaN layers grown by HPCVD**
DURKAYA G., BUEGLER M., ATALAY R., Senevirathna I., ALEVLÍ M., HÍTZEMANN O., KAÍSER M., KIRSTE R., HOFFMANN A., DIETZ N.
PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE, vol.207, no.6, pp.1379-1382, 2010 (SCI-Expanded)
- XXIII. **Optical characterization of InN layers grown by high-pressure chemical vapor deposition**
ALEVLÍ M., ATALAY R., DURKAYA G., Weesekara A., Perera A. G. U., Dietz N., Kirste R., Hoffmann A.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.26, no.4, pp.1023-1026, 2008 (SCI-Expanded)
- XXIV. **Desorption of hydrogen from InN(0001) over-bar) observed by HREELS**
Bhatta R., Thoms B. D., ALEVLÍ M., Dietz N.
SURFACE SCIENCE, vol.602, no.7, pp.1428-1432, 2008 (SCI-Expanded)
- XXV. **The influence of substrate polarity on the structural quality of InN layers grown by high-pressure chemical vapor deposition**
Dietz N., ALEVLÍ M., ATALAY R., DURKAYA G., Collazo R., Tweedie J., Mita S., Sitar Z.
APPLIED PHYSICS LETTERS, vol.92, no.4, 2008 (SCI-Expanded)
- XXVI. **Surface electron accumulation in indium nitride layers grown by high pressure chemical vapor deposition**
Bhatta R., Thoms B., ALEVLÍ M., Dietz N.
SURFACE SCIENCE, vol.601, no.19, 2007 (SCI-Expanded)
- XXVII. **Carrier concentration and surface electron accumulation in indium nitride layers grown by high pressure chemical vapor deposition**
Bhatta R. P., Thoms B. D., Weerasekera A., Perera A. G., ALEVLÍ M., Dietz N.
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A, vol.25, no.4, pp.967-970, 2007 (SCI-Expanded)
- XXVIII. **Performance improvements of ultraviolet/infrared dual-band detectors**
Perera A., Ariyawansa G., Rinzan M., Stevens M., ALEVLÍ M., Dietz N., Matsik S., Asghar A., Ferguson I., Luo H., et al.
INFRARED PHYSICS & TECHNOLOGY, vol.50, pp.142-148, 2007 (SCI-Expanded)
- XXIX. **Characterization of InN layers grown by high-pressure chemical vapor deposition**
ALEVLÍ M., DURKAYA G., Weerasekera A., Perera A. G. U., Dietz N., Fenwick W., Woods V., Ferguson I. F.
APPLIED PHYSICS LETTERS, vol.89, no.11, 2006 (SCI-Expanded)
- XXX. **GaN/AlGaN ultraviolet/infrared dual-band detector**
Ariyawansa G., Rinzan M. B., ALEVLÍ M., Strassburg M., Dietz N., Perera A. G. U., Matsik S. G., Asghar A., Ferguson I., Luo H., et al.
APPLIED PHYSICS LETTERS, vol.89, no.9, 2006 (SCI-Expanded)
- XXXI. **Surface structure, composition, and polarity of indium nitride grown by high-pressure chemical vapor deposition**
Bhatta R. P., Thoms B. D., ALEVLÍ M., Woods V., Dietz N.
APPLIED PHYSICS LETTERS, vol.88, no.12, 2006 (SCI-Expanded)
- XXXII. **The Fermi level dependence of the optical and magnetic properties of Ga_{1-x}MnxN grown by metal-organic chemical vapour deposition**
Strassburg M., Kane M., Asghar A., Song Q., Zhang Z. J., Senawiratne J., ALEVLÍ M., Dietz N., Summers C. J., Ferguson I.
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.18, no.9, pp.2615-2622, 2006 (SCI-Expanded)
- XXXIII. **The characterization of InN growth under high-pressure CVD conditions**
Dietz N., ALEVLÍ M., Woods V., Strassburg M., Kang H., Ferguson I.
PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS, vol.242, no.15, pp.2985-2994, 2005 (SCI-Expanded)
- XXXIV. **The effects of light heavy hole transitions on the cutoff wavelengths of far infrared detectors**
Perera A. G. U., Matsik S. G., Rinzan M. B., Weerasekera A., ALEVLÍ M., Liu H., Buchanan M., Zvonkov B., Gavrilenko V.
Infrared Physics, vol.44, pp.347-353, 2003 (SCI-Expanded)
- XXXV. **Equation of state of alkane and alkylbenzene liquids: A test of the group contributions of scaling parameters for physical and chemical mixtures**

Refereed Congress / Symposium Publications in Proceedings

- I. **Critical Layer Thickness of GaN Thin Films on sapphire grown by hollow-cathode plasma assisted atomic layer deposition**
ALEVLİ M., Gungor N.
European Materials Research Society Spring 2018, France, 18 - 22 June 2018
- II. **Optical properties of GaN and InN on quartz grown by hollow-cathode plasma-assisted atomic layer deposition**
Gungor N., ALEVLİ M.
ICG Annual meeting, 22 - 25 October 2017
- III. **Critical Thickness on Optical Properties at UV VIS and Infrared Region of GaN Thin Films Grown by Hollow Cathode Assisted Atomic Layer Deposition**
Gungor N., ALEVLİ M.
Fotonik 2016 /18. ulusal optik, Elektro Optik Fotonik Çalıştayı, Ankara, Turkey, 23 September 2016
- IV. **THE ROLE OF THICKNESS ON INFRARED OPTICAL PROPERTIES OF GALLIUM NITRIDE THIN FILMS GROWN BY HOLLOW CATHODE PLASMA ASSISTED ATOMIC LAYER DEPOSITION**
Gungor N., ALEVLİ M., Kızır S., Haider A., BIYIKLI N.
Turkish Physical Society 32nd International Physics Congress, Bodrum, Turkey, 6 - 09 September 2016
- V. **Infrared dielectric functions phonon modes and band gap properties of plasma assisted ALD grown In_xGa_{1-x}N films**
ALEVLİ M., Gungor N., Haider A., Kızır S., BIYIKLI N.
The 16th International Conference on Atomic Layer Deposition, Dublin, Ireland, 24 - 27 July 2016
- VI. **The Role of Film Thickness on the Visible UV and Infrared Optical Properties of GaN Films Grown By Hollow Cathode Plasma Assisted Atomic Layer Deposition**
ALEVLİ M., Gungor N., Haider A., Kızır S., BIYIKLI N.
The 16th International Conference on Atomic Layer Deposition, Dublin, Ireland, 24 - 27 July 2016
- VII. **Influence of N₂ H₂ and N₂ Plasma on Binary III Nitride Films Prepared by Hollow Cathode Plasma Assisted Atomic Layer Deposition**
ALEVLİ M., Gungor N., Özgüt Akgün C., Haider A., Kızır S., BIYIKLI N.
The 16th International Conference on Atomic Layer Deposition, Dublin, Ireland, 24 - 27 July 2016
- VIII. **Effect of Substrate Temperature and Ga source Precursor on Growth and Material Properties of GaN Grown by Hollow Cathode Plasma Assisted Atomic Layer Deposition**
Haider A., Kızır S., Deminskyi P., Tsymbalenko O., Leghari S. A., BIYIKLI N., ALEVLİ M., Gungor N.
36th IEEE International Conference on Electronics and Nanotechnology (ELNANO), Kyiv, Ukraine, 19 - 21 April 2016, pp.132-134
- IX. **Hollow Cathode Plasma Assisted Atomic Layer Deposition of Wurtzite InN and In_xGa_{1-x}N Thin Films with Low Impurity Content**
Haider A., Kızır S., Özgüt Akgün C., Goldenberg E., ALEVLİ M., OKYAY A. K., BIYIKLI N.
American Vacuum Society 62nd international symposium, 18 - 23 October 2015
- X. **Comparison Studies of GaN Grown with Trimethylgallium and Triethylgallium for Optoelectronic Applications**
ALEVLİ M., Haider A., Gungör N., Kızır S., Sabri A., OKYAY A. K., BIYIKLI N.
American vacuum Society 62 nd International Meeting, San-Jose, Costa Rica, 18 - 23 October 2015
- XI. **Comparison of Trimethylgallium and Triethylgallium as Ga Source Materials for the Growth of Ultra thin GaN Films via Hollow cathode Plasma assisted ALD**
ALEVLİ M., Gungör N., Özgüt Akgün Ç., Haider A., Kızır S., Leghari S., Alkis S., OKYAY A. K., BIYIKLI N.
American Vacuum Society, Portland, United States Of America, 28 June - 01 July 2015

- XII. **Substrate Temperature Influence on the Properties of GaN Thin Films Grown by Hollow cathode Plasma assisted Atomic Layer Deposition**
ALEVLİ M., Güngör N., Ozgit Akgun C., Kızır S., Haider A., Leghari S., Alkis S., OKYAY A. K., BIYIKLI N.
American Vacuum Society 15th Conference on Atomic Layer deposition, Portland, United States Of America, 28 - 01 June 2015, pp.370
- XIII. **Enhanced Light Scattering with Energy Downshifting Using 16 nm Indium Nitride Nanoparticles for Improved Thin film a Si N i P Solar Cells**
Chowdhury F. I., İslam K., Alkis S., ORTAÇ B., ALEVLİ M., Dietz N., OKYAY A. K., Nayfeh A.
227th Electro Chemical Society meeting, Chicago, United States Of America, 24 - 28 May 2015, vol.66, pp.9-16
- XIV. **Effect of reactor pressure on optical and electrical properties of InN films grown by high-pressure chemical vapor deposition**
Alevli M., Gungor N., Alkis S., Ozgit-Akgun C., Donmez I., Okyay A. K., Gamage S., Senevirathna I., Dietz N., Biyikli N.
5th International Symposium on Growth of III-Nitrides (ISGN), Georgia, United States Of America, 18 - 22 May 2014, vol.12, pp.423-429
- XV. **Growth temperature - Phase stability relation in In_{1-x}Ga_xN epilayers grown by high-pressure CVD**
Durkaya G., Alevli M., Buegler M., Atalay R., Gamage S., Kaiser M., Kirste R., Hoffmann A., Jamil M., Ferguson I., et al.
2009 MRS Fall Meeting, Boston, MA, United States Of America, 30 November - 04 December 2009, vol.1202, pp.277-282
- XVI. **Optical and structural properties of InN grown by HPCVD**
Buegler M., Alevli M., Atalay R., Durkaya G., Senevirathna I., Jamil M., Ferguson I., Dietz N.
9th International Conference on Solid State Lighting, San Diego, CA, United States Of America, 3 - 05 August 2009, vol.7422
- XVII. **Properties of InN layers grown by high pressure CVD**
Alevli M., Durkaya G., Kirste R., Weesekara A., Perera U., Fenwick W., Woods V., Ferguson I. T., Hoffmann A., Dietz N.
2006 MRS Fall Meeting, Boston, MA, United States Of America, 27 November - 01 December 2006, vol.955, pp.291-296
- XVIII. **Properties of InN grown by high-pressure CVD**
Alevli M., Durkaya G., Woods V., Haboeck U., Kang H., Senawiratne J., Strassburg M., Ferguson I. T., Hoffmann A., Dietz N.
2005 Materials Research Society Fall Meeting, Boston, MA, United States Of America, 28 November - 02 December 2005, vol.892, pp.77-82
- XIX. **The growth of InN and related alloys by high-pressure CVD**
Dietz N., Alevli M., Kang H., Straßburg M., Woods V., Ferguson I. T., Moore C. E., Cardelino B. H.
Operational Characteristics and Crystal Growth of Nonlinear Optical Materials II, San Diego, CA, United States Of America, 31 July - 01 August 2005, vol.5912, pp.1-8

Supported Projects

Alevli M., TUBITAK Project, Atomik Katman Büyütme Yöntemi İle Kaplanan GaN Galyum Nitrat İnce Filmlerinin Optik Karakterizasyonu, 2014 - 2015

Metrics

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Citation (WoS): 780

Citation (Scopus): 860

H-Index (WoS): 15

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