CURRICULUM VITAE

PERSONAL DETAILS:

Name and Surname: Halit ALTUNTAS

Date of Birth: 11 Nov. 1979

Marital Status: Married

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EDUCATIONAL BACKGROUND:

- **PhD.,** Physics, July 2009, Semiconductor Technologies Advanced Res. Lab., Gazi University, Ankara, Turkey.

  PhD. Thesis: MBE Growth and Determination of Physical Properties of AlxGa1-xAs/GaAs Quantum Well Infrared Photodetectors.

- **M. Sc.,** Physics, August 2004, Gazi University, Ankara, Turkey.

  M. Sc. Thesis: Investigation of Electronic Structure and Vibrational Properties of $AuAl_2$ Within the Density Functional Theory.

- **B. Sc.** Physics, June 2001, Gazi University, Ankara, TURKEY

WORK AND RESEARCH EXPERIENCE:

- **September 2011- Present**
  Assoc. Professor, Department of Physics, Cankiri Karatekin University, Cankiri, TURKEY.

- **August- Sempember 2014**
  Visiting Scientist, Laboratory of Inorganic Chemistry (ALD Deposition Lab.), Faculty of Science, University of Helsinki, Helsinki, FINLAND.

- **March 2010- September 2011**
  Assist. Professor, Department of Physics, Cankiri Karatekin University, Cankiri, TURKEY.

- **December 2005-March 2010**
  Research Assist., Department of Physics, Gazi University, Ankara, TURKEY.

- **January-February 2008**
  Visiting Scientist, Department of Condensed Matter., Braun Submicron Research Center, Weizmann Institute of Science, , Rehovot, ISRAEL.

- **July- October 2006**
  Visiting and Course, Leonardo Da Vinci Program, Deparment of Physics, University of Sevilla, SPAIN, and Universidad Politéchnica de Madrid, Madrid, SPAIN.

- **September 2003**
  Visiting student, Department of Physics, Radboud University (Nijmegen University), The NETHERLANDS.

- **2004-2005 Academic Year:**
  Laboratory Assistant, Faculty of Engineering, TOBB University, TURKEY.

ADMINISTRATIVE POSITIONS:

2011-2015: Head of Physics Department, Faculty of Science, Cankiri Karatekin University.

2012-2016: Head of Solid State Physics in Department of Physics.

RESEARCH INTERESTS:

- **Molecular Beam Epitaxy (MBE) growth of AlGaAs/GaAs structures.**

- **Electrical characterizations of oxide (β-Ga_2O_3, SiO_2, TiO_2, HfO_2, $SrTiO_3$, etc../ and non-oxide thin films by Current-Voltage (*I-V*) and Capacitance Voltage (*C-V*) measurements and Current transport mechanisms in Dielectrics films deposited by Atomic Layer Deposition (ALD).**

PROJECTS:

- **2016-: Deposition of HfO_2 thin films by atomic layer deposition technique and investigation of current-transport mechanisms.**
  Project Role: Project Investigator (PI)
  Funding Agency: University Research Grant (Cankiri Karatekin Univ.)

- **2011-2014: Photonics Research Center**
  Project Code: DPT-2011K120290
  Project Role: Researcher
  Funding Agency: Turkish Prime Ministry State Planning Agency

- **2010-2012: MOVPE growth and characterizaton of epitaxial germanium for infrared photovoltaic and sensor applications.**
  Project Code: TUBITAK-209T051
  Project Role: Researcher
  Funding Agency: TUBITAK and IMEM-CNR (ITALY)

- **2008-2010: Studies on synthesis and characterization of TiO_2 thin film nanostructures which have applications in ecological physics.**
  Project Code: TUBITAK-107A584
  Project Role: Researcher
  Funding Agency: TUBITAK and ANCS (ROMANIA)

TEACHING EXPERIENCE:

- **Instructor, General Physics I (3 Terms)**
- **Instructor, General Physics II (1 Terms)**
- **Instructor, Solid State Physics (3 Terms)**
- **Instructor, Quantum Mechanics (3 Terms)**
- **Instructor, Opto-electronics (3-Terms)**
- **Instructor, Climate and Atmosphere Physics (4 Terms)**
- **Instructor, Renewable Energy (4 Terms)**
- **Instructor, Mechanics Laboratory (5 Terms)**
- **Instructor, Electrics Laboratory (5 Terms)**
- **Res. Assist., Waves and Optics Laboratory (3 terms)**
- **Res. Assist., Electronics Laboratory (5 terms)**

ATTENDED COURSES AND WORKSHOPS:

- **UNIDO 4th International Workshop on Cleanroom Training, 16-24 June 2014, Bilkent University, Ankara, TURKEY.**

PUBLICATIONS (SCIENCE CITATION INDEX JOURNALS):

1. **H. Altuntas**, T. Bayrak "A comparative study on electrical characteristics of crystalline AlN thin films deposited by ICP and HCPA-sourced atomic layer deposition" ***ELECTRONICS MATERIALS LETTERS***, ACCEPTED-IN PUBLICATION.

2. **H. Altuntas,** T. Bayrak, S. Kizir, A. Haider, N. Biyikli, "Electrical conduction and dielectric relaxation properties of AlN thin films grown by hollow-cathode plasma-assisted atomic layer deposition" ***SEMICONDUCTOR SCIENCE & TECHNOLOGY***, 31, 075003 (2016).

3. **H. Altuntas,** C. OzgitAkgun, I. Dönmez, N. Biyikli, "Effect of Film Thickness on the Electrical Properties of AlN Films Prepared by PlasmaEnhanced Atomic Layer Deposition" ***IEEE TRANSACTIONS ON ELECTRON DEVICES***, 62, 3627-3632 (2015).

4. **H. Altuntas,** C. OzgitAkgun, I. Dönmez, N. Biyikli, "Current transport mechanisms in plasmaenhanced atomic layer deposited AlN thin films" ***JOURNAL OF APPLIED PHYSICS***, 117, 155101-1-6 (2015).

5. **H. Altuntas**, I. Donmez, C. Ozgit-Akgun, N. Biyikli, "Effect of postdeposition annealing on the electrical properties of beta-Ga2O3 thin films grown on p-Si by plasma-enhanced atomic layer deposition", ***JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A***, 32, 041504 (2014).

6. **H. Altuntas**, I. Donmez, C. Ozgit-Akgun, N. Biyikli, "Electrical characteristics of beta-Ga2O3 thin films grown by PEALD", ***JOURNAL OF ALLOYS AND COMPOUNDS***, 593,190 (2014).

7. **H. Altuntas** and S. Ozcelik "The analysis of leakage current in Au/SiO2/n-GaAs (MIS) at room temperature", ***SEMICONDUCTORS +***, 47,1308 (2013).

8. **H. Altuntas**, S. Ozcelik, "The interface states and series resistance analyzing of Au/SiO2/n-GaAs at high temperatures ", ***JOURNAL OF ALLOYS AND COPMPOUNDS***, 577, 143-147 (2013).

9. M. Gokcen, **H. Altuntas**, S. Altindal, and S. Ozcelik "Frequency and voltage dependence of negative capacitance in Au/SiO2/n-GaAs structures", ***MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING***, 15 (1) 41-46 (2012).

10. **H. Altuntas**, S. Altindal, S. Corekci, M. K. Ozturk, and S. Ozcelik "Electrical characteristics of Au/n-GaAs structures with thin and thick SiO2 dielectric layer", ***SEMICONDUCTORS +***, 45 (10) 1286-1290 (2011).

11. M. K. Ozturk, **H. Altuntas**, S. Corekci, H. B. Yu, S. Ozcelik, E. Ozbay "Strain-stress analysis of AlGaN/GaN heterostructures with and without AlN buffer and interlayer", ***STRAIN***, 47 (S2) 19-27 (2011).

12. **H. Altuntas**, A. Bengi, T. Asar, U. Aydemir, B. Sarıkavak, Y. Ozen, S. Altındal, S. Ozcelik "Interface state density analyzing of Au/TiO2(Rutile)/n-Si Schottky barrier diode for Surface and Interface Analysis", ***SURFACE AND INTERFACE ANALYSIS***, 42, 1257-1260 (2010).

13. **H. Altuntas**, S. Ozcelik, " Growth and characterization of AlGaAs/GaAs quantum well infrared photodetectors", ***OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS***, 4 (2), 132-137 (2010).

14. I. Kars, S.Ş. Çetin, B. Kınacı, B. Sarıkavak, A. Bengi, **H. Altuntaş**, M. K. Öztürk, and S. Özçelik " Influence of thermal annealing on the structure and optical properties of d.c. magnetron sputtered titanium dioxide thin films" ***SURFACE AND INTERFACE ANALYSIS***, 42, 1247-1251 (2010).

15. **H. Altuntas**, S. Altindal, H. Shtrikman, S. Özçelik "A detailed study of current-voltage characteristics in Au/SiO2/n-GaAs in wide temperature range", ***MİCROELECTRONICS RELIABILITY***, 49 (8) 904-911 (2009).

16. **H. Altuntas**, S. Altindal, S. Özçelik, H. Shtrikman "Electrical characterization of Au/n-GaAs with and without SiO2 Insulator layer at room temperature ", ***VACUUM***, 83 (7):1060-1065, (2009).

17. **H. Altuntas**, A. Bengi, U. Aydemir, T. Asar, S.S. Cetin, I. Kars, S. Altindal, S. Ozcelik, "Electrical characterization of current conduction in Au/TiO2/n-Si at wide temperature range", ***MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING***, 12 (6) 224-232 (2009).

18. M, Gökçen, **H. Altuntas** "On the profile of temperature dependent electrical and dielectrical properties of Au/SiO2/n-GaAs (MOS) structures at various frequencies" ***PHYSICA B- CONDENSED MATTER***, 404 (21):4221-4224, (2009).

19. S. B. Lisesivdin, H. **Altuntas**, A. Yildiz, M. Kasap, E. Ozbay, S. Özcelik "DX-center energy calculation with quantitative mobility spectrum analysis in n-AlGaAs/GaAs structures with low Al content" ***SUPERLATTICES AND MICROSTRUCTURES***, 45: 604-611 (2009).

20. A. Yildiz, S. B. Lisesivdin, **H. Altuntas**, M. Kasap, S. Özcelik "Electrical conduction properties of Si δ-doped GaAs grown by MBE" ***PHYSICA B- CONDENSED MATTER***, 404 (21):4202-4206, (2009).

21. B. Sarıkavak, , M. K. Özturk, **H. Altuntas**, T. Mamedov, S. Altindal, S. Özcelik "MBE-growth and characterization of InxGa1-xAs/GaAs (x=0.15) superlattice" ***REVISTA MEXICANA DE FISICA***, 54(6): 416-421 (2008).

22. M. Gokcen, **H. Altuntas**, S. Altindal "Temperature dependence of electrical characteristics of Au/SiO2/n-GaAS (MOS) structures", ***OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS***, 2(12):838-841 (2008).

23. M. Gokcen, **H. Altuntas**, S. Altindal "Electrical and dielectric properties of Au/SiO2/n-GaAs (MOS) structures with different oxide layer thickness" ***OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS***,, 2(12):833-837 (2008).

NON-SCI PUBLICATIONS:

1. **H. Altuntas**, M. Gökçen, S. Özcelik, "Analysis of current-voltage characteristics in Au/n-GaAs Schottky barrier diodes in wide temperature range" ***Journal of Optoelectronics and Advanced Materials - Symposia***, 1(3):222 – 225 (2009).

2. **H. Altuntas**, M. Gökçen, "On the anomalous peak in the forward bias C-V curves of in Au/SiO2/n-GaAs structures", ***Journal of Optoelectronics and Advanced Materials - Symposia***, 1(3):226 – 229 (2009).

3. **H. Altuntas**, S.B. Lisesivdin, A. Yildiz, T. Mamedov and S. Özcelik, "MBE Growth and characterization of n-AlGaAs/GaAs Heterojunction", ***Balkan Physics Letters***, 412-415 (2008).

4. A. Yildiz, **H. Altuntas**, S. B. Lisesivdin, A. Bengi, and M. Kasap, "Stokes shift in InGaN epitaxial layer grown by MOVPE" ***Balkan Physics Letters***, 346-348 (2008).

5. **H. Altuntas**, M. K. Öztürk, T. S. Mammadov, and S. Özçelik, " Structural Analysis of AlxGa1-xAs/GaAs Multi Quantum Well Structure", ***Fizika***, 14, 88 (2008).

6. H. M. Tutuncu, **H. Altuntas,** G. P. Srivastava, G. Ugur, "First-principles study of electronic and dynamical properties of AuAl2", ***Physica Status Solidi (c)***, 1(11): 3027-3030 (2004).

INTERNATIONAL CONFERENCES AND MEETINGS:

1. **H. Altuntas**, S. Kizir, T. Bayrak, A. Haider, N. Biyikli, "Dielectric behavior of AlN thin films deposited on *p*-Si substrates by hollow-cathode plasma-assisted atomic layer deposition" ***16th International conference on Atomic Layer Deposition***, Dublin, **IRELAND** (2016).

2. **H. Altuntas**, S. Kizir, T. Bayrak, A. Haider, N. Biyikli, "Electrical properties of AlN films deposited by plasma enhanced atomic layer deposition", ***The 13th International Baltic Conference on Atomic Layer Deposition***, Tartu, **ESTONIA** (2015).

3. **H. Altuntas**, C. Ozgit-Akgun, I. Donmez, N. Biyikli, "Comparative study of the AlN dielectric films grown by PAALD and HCPALD", ***The 13th International Baltic Conference on Atomic Layer Deposition***, Tartu, **ESTONIA** (2015). (**Oral Presentation**).

4. **H. Altuntas**, C. Ozgit-Akgun, I. Donmez, N. Biyikli, Current Conduction Mechanisms in PlasmaEnhanced Atomic Layer Deposited AlN Thin Films on pSi", ***15th International conference on Atomic Layer Deposition***, California, **USA** (2015).

5. **H. Altuntas**, C. Ozgit-Akgun, I. Donmez, N. Biyikli, "Effect of post-deposition annealing on the electrical characteristics of β-Ga2O3 thinfilms deposited by PEALD", ***14th International conference on Atomic Layer Deposition***, Kyoto, **JAPAN** (2014).

6. **H. Altuntas**, , I. Donmez, C. Ozgit-Akgun N. Biyikli, "Electrical Characteristics of Ga2O3 Thin Films Deposited by Plasma enhanced Atomic Layer Deposition", ***13th International conference on Atomic Layer Deposition***, San Diego- **USA** (2013).

7. S. Özçelik, **H. Altuntas,** and , T. Mammedov, "MBE Growth and Characterization of InGaAs/GaAs Multi Quantum Well Infrared Photodetector Structure", ***6th. International Microelectronic Sensors and Device Applications***, Bakü, **AZERBAIJAN** (2007).

8. S. Saglam, **H. Altuntaş**, T. Mammedov, and S. Özçelik, "MBE Growth and Characterization of In0.17Ga0.85As/GaAs QWIP Structure", ***6th. International Microelectronic Sensors and Device Applications***, Bakü, **AZERBAIJAN** (2007).

9. S. Cetin, S.T. Agaliyeva, B. Kinaci, T. Asar, **H. Altuntas**, T. S. Mammadov, S. Ozcelik, "Temperature Dependence Photoluminescence Study of GaAs1-xPx/GaAs Structure", ***7th. International Microelectronic Sensors and Device Applications***, Bakü, **AZERBAIJAN** (2008).

10. **H. Altuntas**, S. Altindal, S. Özçelik, " The Frequency Dependent Electrical Characteristics of Au/SiO2/n-GaAs (MOS) Type Devices", ***Turkish Physical Society XXVII. International Conference***, Istanbul, **TURKEY** (September-2010).

11. **H. Altuntas**, S. Özçelik, and H. Shtrikman, "Analysis of interface states and series resistance of Au/SiO2/n-GaAs Schottky barrier diodes at room temperature" ***8th. International Conference on Physics of Advanced Materials (ICPAM-8***), **ROMANIA** (2008).

12. **H. Altuntas**, H. Shtrikman and S. Özçelik, "The barrier height inhomogeneity in Au/n-GaAs Schottky barrier diodes" ***8th. International Conference on Physics of Advanced Materials (ICPAM-8)***, **ROMANIA** (2008).
13. **H. Altuntas**, M. Gökçen and S . Özçelik, "Current-voltage characteristics of Au/n-GaAs Schottky barrier diodes in wide temperature ranges" ***Condenced Matter Physics Conference of Balkan Countries***, Muğla- **TURKEY** (2008).

14. **H. Altuntas** and M. Gökçen "On the anomalous peak in the forward bias C-V curves of in Au/SiO2/n-GaAs structures" ***Condenced Matter Physics Conference of Balkan Countries***, Muğla- **TURKEY** (2008).

15. M. Gökçen, **H. Altuntas**, Ş. Altındal, " Temperature dependence of electrical characteristics of Au/SiO2/n-GaAs (MOS) strucrures" ***25th. International Physics Congress***, Bodrum, **TURKEY** (August-2008).

16. S. Özçelik, **H. Altuntas**, B. Akaoğlu, A. Bengi and T. Mammedov, " Growth and Characterization of AlGaAs/GaAs Multi-Quantum Well Infrared Photodetector Structure" ***17th. International Vacuum Congress (IVC17)***, Stockholm, **SWEDEN** (July-2007).

17. **Altuntaş, H**., Özçelik, S., Bengi, A., and Mammedov, T., "MBE Growth and Structural characterization of InGaAs/GaAs QWIP" *Turkish Physical Society XXIV. International Conference*, Malatya, **TURKEY** (August-2007) **(Oral Presentation)**.

18. **H. Altuntaş**, S. B. Lisesivdin, A. Yildiz, Özçelik, S., Mammedov, T., "MBE Growth and Characterization of n-AlGaAs/GaAs Heterojunction for 2DEG", Turkish Physical Society XXIV. International Conference, Malatya, **TURKEY** (August-2007).

19. A. Yildiz, **H. Altuntaş**, S. B. Lisesivdin, A. Bengi, and M. Kasap, "Stokes shift in In0.13Ga0.87N epitaxial layer grown by MOVPE" ***Turkish Physical Society XXIV. International Conference***, Malatya, **TURKEY** (August-2007).

20. G. Ugur, , F. Soyalp, **H. Altuntaş**, H. M. Tütüncü, and G. P. Srivastava, " Structural, Electronic, and Phonon Properties of AuAl2 and AuGa2 " DFT Conference ,Geneva, Switzerland (September 2005).

21. H. M. Tutuncu, **H. Altuntaş,** G. P. Srivastava, and G. Ugur, "First-principles study of electronic and dynamical properties of AuAl2" ***11th International Conference on Phonon Scattering in Condensed Matter (Phonons2004)***. St. Petersburg / **RUSSIA** . (July 25, 2004).

NATIONAL CONFERENCES AND MEETINGS:

1. **H. Altuntas,** A. Yildiz, Y. Ozen, S. Altindal, S. Ozcelik, " Au/TiO2/n-Si Schotkky Diyotlarında Ara-Yüzey Durum Analizi", ***16th Condensed Matter Physics Symposium***, Gazi University/ Ankara, (6. November. 2009).
2. B. Kayhan, A. Yildiz, **H. Altuntas,** M. Kasap, ve S. Ozcelik, " InGaAs Yarı-iletkeninin Elektriksel İletkenlik Özellikleri", 16th Condensed Matter Physics Symposium, Gazi University/ Ankara, (6. November. 2009).

3. S. B. Lisesivdin, **H. Altuntaş**, A. Yıldız, M. Kasap, E. Özbay ve S. Özçelik " Sıcaklığa ve manyetik alana bağlı Hall ölçümlerinin analizi ile DX merkezi aktivasyon enerjisi hesabı" 16. Yoğun Madde Fiziği Konferansı, pp:S9, Gazi Üniversitesi, Ankara-Türkiye (6 Kasım 2009).

4. **H. Altuntaş**, M. K. Öztürk, S. Özçelik, E. Özbay "AlN tampon ve ara-tabakalı AlGaN/GaN HEMT yapılarında Zorlama Analizi" 15. Yoğun Madde Fiziği Konferansı, pp:69, Bilkent Üniversitesi, Ankara-Türkiye (7 Kasım 2008).

5. **H. Altuntas**, A. Bengi, A. Tataroglu, T. Mammedov, and S. Özçelik, "In0.15Ga0.85As/GaAs Çoklu Kuantum Kuyulu Kızılötesi Fotodedektör Yapısının MBE Yöntemi İle Büyütülmesi ve Karakterizasyonu" 14th. Condensed Matter Physics Symposium, Hacettepe University, Ankara/ Turkey (November-2007).

6. A. Bengi, S. Sarıkavak, **H. Altuntas**, T. Mammedov and S. Özçelik, "InGaAs/InP Yapısının Moleküler Demet Epitaksi Yöntemi ile Büyütülmesi ve Karakterizasyonu" 14th. Condensed Matter Physics Symposium, Hacettepe University, Ankara/ Turkey (November-2007).

7. B. Sarikavak, **H. Altuntas**, A. Bengi, T. S. Mammadov, S. Ozcelik, "Inx Ga1-x As/ GaAs (x= 0,15) Superlattice Structure Growth by MBE and Its XRD and Electrical Characterizations", 11th Condensed Matter Physics Symposium, Gazi University/ Ankara, (3. Dec.2004).

8. S. Korcak, H. Gumus, M. K. Ozturk, **H. Altuntas**, A. I. Kılıc, A. Bengi, T. S. Mammadov, S. Ozcelik, "Alx Ga1-x As/ GaAs QW Structure Growth by MBE and Its XRD Characterization", 11th Condensed Matter Physics Symposium, Gazi University/ Ankara (3. Dec.2004).

9. **H. Altuntas**, G. Ugur, S. Ugur, I, Akgun, "The Phonon Dispersion of Ni-45%Pd Alloy", 9 th. Condensed Matter Physics Symposium, Bilkent University / Ankara. (21. Nov. 2002) (Oral presentation)

ADVISING:

1. **A. Kaya (MSc), (Cankiri Karatekin University, Institute of Science, Physics), 2014-Present**
2. **K. Kaplan (MSc), (Cankiri Karatekin University, Institute of Science, Physics), 2014-Present**
3. **N. Okumus (MSc's), (Cankiri Karatekin University, Institute of Science, Physics), 2016-Present**