

Abdulaziz N. AlHazaa

Department of Physics & Astronomy +
King Abdullah Institute for
Nanotechnology (KAIN)

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EDUCATION

PhD in Mechanical & Manufacturing Engineering

Sep 2005 – Nov 2009

University of Calgary, Calgary, Alberta, Canada

Thesis title: Diffusion bonding of Al7075 alloy to Ti-6Al-4V alloy

Area of specialization: Joining Technologies

- GPA : 4.0 /4.0

Masters in Physics

Jan 2002 – Aug 2003

University of Texas, Austin, TX, USA

Thesis title: High resolution ultraviolet photoemission spectroscopy (UPS)

Area of specialization: surface physics

- GPA : 3.0 /4.0

Bachelor of Science in physics

Jan 1993 – Jun 1997

King Saud University, Riyadh, Saudi Arabia

- GPA : 4.85/5.0 with First Class Honor
- Ranked #1 graduate in physics department and #6 among KSU graduates

AREAS OF INTEREST

- Joining technologies and welding (such as Diffusion bonding, Spark Plasma Sintering)
- Thermal Coatings
- surface analysis by X-ray Photoelectron Spectroscopy (XPS)
- Alloying and galvanic corrosion of dissimilar alloys

Granted NPST (National Plan for Science & Technology) PROJECTS

- Aluminum to Titanium joining by Spark Plasma Sintering (PI) Approved in March 2014.
- Scanning Tunneling Microscope (STM) for selective atomic layer deposition (Co-I) Approved in Oct. 2016.

SUPERVISED GRADUATE STUDENTS

- Investigation of the Atomic diffusion and intermetallic formation IMC of Sn-Cu alloy coatings on Ti-6Al-4V alloy substrate, Msc thesis by Sultan AlGharbi, completed, 2017. (Principle supervisor).
- Interaction of Melanin With Ionizing Radiations, Msc thesis by Ghazwa AlSubaie, completed 2015. (co-supervisor).
- Computational investigation of InAs InP quantum dots emission energy tunability by in situ height control by Amal AlDhubaib, completed 2015, (co-supervisor).

TRAINING COURSES

- Fundamental of x-ray diffraction, ICDD x-ray clinics, USA, 2011.
- Polymer & composite analysis & operations, international center for training and development, UAE, 2004.
- Communication skills, Qudraat Establishment, Riyadh, 2004.
- Innovation & Creativity, Meric Training & Consulting, Riyadh, 2004.
- Basic First Aid and Heartsaver Course, Saudi Heart Association, Riyadh, 2001.

- Meeting and group discussions, Meric Training & Consulting, Riyadh, 2000.
- X-ray diffractometry, Philips Analytical, Netherlands, 2000.
- The Quality Advantage, SABIC, Riyadh, 2000.
- Introduction to Statistics, SABIC, Riyadh, 1999.
- Solar Radiation Resources Assessment, NREL, Riyadh, 1997.

SUMMARY OF SKILLS

- Teaching graduate and undergraduate physics and materials science courses.
- Supervising graduate and undergraduate students.
- Initiating research projects on the fields of joining technologies of advance materials, coatings, surface analysis, corrosion studies and characterizations.
- Managing and supervising labs.
- Working with scientific and industrial labs and participating in obtaining ISO certificates (9001 and 17025).
- Hand experience with interpretations of surface analysis techniques such as X-ray photoelectron spectroscopy (XPS), Scanning Electron Microscopy (SEM), X ray diffraction (XRD), X ray Laue analysis, Fourier transform infrared spectroscopy (FTIR) and Fourier transform Raman spectroscopy (FT-Raman). Trained on AFM.
- Worked with scientific computer programs such as MatLab, Maple, Tecplot, AutoCAD, and Origin.

CONFERENCES

- 1- Fourth International Conference & Exhibition on Chemistry in Industry, Bahrain, October 30 to November 1, 2000, (Oral presentation).
- 2- Conference of Metallurgists, Winnipeg, MB, Canada, 24-27 Aug. 2008, (Oral presentation).
- 3- SIWAN 5th Szeged International Workshop on Advances in Nanoscience (SIWAN5), Szeged, Hungary, 24-27 Oct. 2012, (Attendance).
- 4- Eccomas Thematic Conference on Smart Structures and Materials, Turin, Italy, 24-26 Jun 2013, (Oral presentation).
- 5- International symposium for welding and joining, Osaka, Japan, 6-8 Nov. 2013, (Attendance).
- 6- Third International Conference on Materials Science & Engineering, San Antonio, TX, USA, 6-8 Oct. 2014, (Attendance).
- 7- European Congress and Exhibition on Advanced Materials & Processes (Euromat) 2015, Warsaw, Poland, 20-24 Sep. 2015, (Attendance).
- 8- Joining Technologies and Materials Science, International Symposium in Qatar, organized by Osaka University, expand collaboration network in Middle East, 7 Dec. 2015, (Invited speaker).
- 9- 7th International Conference on Advanced Materials Research, Hong Kong, Jan 20-22, 2017, (Oral Presentation).
- 10- The First Canada –UAE-Japan work shop on Functional Materials: Synthesis, characterizations and Applications, University of Sharjah, January 29-31, 2017. (Invited Speaker).

PUBLICATIONS

Journal papers:

- 1- A. N. AlHazaa, M. Shar, A. Atieh, H. Nishikawa, Transient Liquid Phase bonding of magnesium alloy AZ31 using Cu coatings and Cu coatings with Sn interlayers, *Advances in Materials Science and Engineering*, submitted.
- 2- M.A. Majeed Khan, Wasi Khan, Maqsood Ahamed, Abdulaziz AlHazaa, Microstructural properties and enhancement in photocatalytic performance of Zn doped CeO₂ nanocrystals, *Scientific Reports*, 2017.
- 3- Abdelaleem Al-Obaisi, Ehab Adel El-Danaf, Adham Ezzat Ragab, Mahmoud S Soliman, and Abdulaziz AlHazaa, Statistical Model for the Mechanical Properties of Al-Cu-Mg-Ag Alloys at High Temperatures, *Advances in Materials Science & Engineering*, 2017.
- 4- Anas M. Atieh, Rula M. Allaf, Abdulaziz AlHazaa, Mahmoud Barghash, Hasan Mubaydin, Effect of pre-and post-weld shot peening on the mechanical & tribological properties of TIG welded Al 6066-T6 alloy, *Transactions of the Canadian Society for Mechanical Engineering*, Vol. 41, No. 1, 2017.
- 5- A. N. AlHazaa, Effect of bonding temperature on the microstructure and strength of the joint between magnesium AZ31 and Ti-6Al-4V alloys using copper coatings and tin interlayers, *Key Engineering Materials*, 2017.
- 6- A. N. AlHazaa , S. H. AlGharbi, H. Nishikawa, Effect of bonding temperature on the joining of Ti-6Al-4V alloy using Cu coatings and Sn interlayers, *Journal of Materials Engineering & Performance*, 2016.
- 7- Tansir Ahamad, M. A. Majeed Khan, Sushil Kumar, Maqsood Ahamed, Mohammed Shahabuddin, Abdulaziz N. Alhazaa, CdS quantum dots: growth, microstructural, optical and electrical characteristics, *Appl. Phys. B* (2016) 122:179.
- 8- Hiroshi Nishikawa, Abdulaziz N. AlHazaa, Siliang HE , Addulhakim A. Almajed and Mahmoud S. Soliman, Interfacial reaction between Sn-Ag-Cu-Mg solder and ENIG substrate, *Key Engineering Materials*, Vol 701, 216-219, 2016.
- 9- Shahid Mahmood Ramay, Asif Mahmood, Shahid Atiq, Abdulaziz AlHazaa, Study of divalent elements (Mg, Sr and Ba)-doped LaMnO₃ nano-manganites. *International Journal of modern physics B* 30(6), 2016.
- 10- A. N. AlHazaa, Khalil A. Khalil and Muhammad A. Shar, Transient Liquid Phase bonding of Magnesium alloys AZ31 using nickel coatings and high frequency induction heat sintering, *Journal of King Saud University (Science)*, Volume 28, Issue 2, 152–159, 2016.
- 11- Asif Mahmood, Shahid Mahmood Ramay, Yousef S. Al-Zaghayer, Abdul-Aziz N. AlHazaa, Waheed A. Al Masary & Shahid Atiq, Au doping effect on the electrical and magnetic properties of Fe₃O₄ nanoparticles. *Modern Physics Letters B* 29(33), 2015.
- 12- Asif Mahmood, Shahid Mahmood Ramay, Yousef S. Al-Zaghayer, Abdul-Aziz N. AlHazaa, Waheed A. Al Masary & Shahid Atiq, Synthesis and investigation of photocatalytic properties of Au/Fe₃O₄ nanocomposite materials for degradation of methylene blue, *Desalination and Water Treatment*, 1-7, Oct. 2015.
- 13- Bouraoui Ilahi, Manel Souaf, Mourad Baira, Jawaher Alrashdi, Larbi Sfaxi, Abdulaziz AlHazaa, and Hassen Maaref, Evolution of InAs/GaAs QDs Size with the Growth Rate: A Numerical Investigation, *Journal of Nanomaterials*, Volume 2015 (2015), Article ID 847018, 6 pages.
- 14- A. N. AlHazaa, El-Sayed M. Sherif, Hany S. Abdo Galvanic Corrosion in 3.5 wt. % NaCl Solutions of Magnesium alloy AZ31 Coupled with Ni after Different Bonding Periods of Time, *Int. J. Electrochem. Sci*, 10 (2015) 5420 – 5433.

- 15- A. N. AlHazaa, El-Sayed M. Sherif, Corrosion Behavior of Al7075, Ti-6Al-4V, and Sn-3.6Ag-1Cu Alloys in 3.0 wt.% Sodium Chloride Solutions Using Potentiodynamic Polarization Measurements, Int. J. Electrochem. Sci., 10 (2015) 4193 - 4207.
- 16- A. N. AlHazaa and T. I. Khan, Diffusion bonding of Al7075 alloy to Ti-6Al-4V alloy using Cu coatings and Sn-3.6Ag-1Cu interlayers, Journal of Alloys and Compounds, 2010
- 17- A. N. AlHazaa, T. I. Khan and I. Alhaq, TLP bonding of Al7075 alloy to Ti-6Al-4V alloy using copper interlayers, Journal of Materials Characterizations, 2010.

Conference papers:

- 1- Anas M. Atieh, Abdulaziz Alhazaa, Atta G. Attaelmanan, The Effect of Quenching Medium on The Microstructure and Mechanical Behaviour of Inconel 625 Welded Alloy, 26th Canadian Congress of Applied Mechanics (CANCAM), Victoria, BC, Canada, 29th May 2017.
- 2- Anas M. Atieh, Rula M. Allaf, Mohammad Ebrahim Nawaiseh, Abdulaziz AlHazaa, Mahmoud Barghash, Effect of Shot Peening on the Mechanical Properties & Weldability of TIG Welded Aluminum 6061-T6 Alloy, Conference: CSME International Congress, At Kelowna, BC, Canada, Jun 2016.
- 3- A. N. AlHazaa and T. I. Khan, Diffusion bonding of Al7075 to Ti-6Al-4V using eutectic interlayers, conference of Metallurgists, <http://toc.proceedings.com/08452webtoc.pdf> Winnipeg, 2008.

CURRENT CONSULTATIONS

- 1- The Head of the physical standardization Committee at Saudi Standards, Metrology & Quality Organization (SASO),
- 2- Member of National Center for Assessments, Qiyas.
- 3- Member of the National Center for Nondestructive Tests (NCNDT) at King Abdulaziz City for Science & Technology (KACST).

EMPLOYMENT

King Abdullah Institute for nanotechnology & Department of Physics & Astronomy, KSU

Vice Dean for technical affairs / Assistant Professor of physics

July 2012 – current position

Responsibilities:

- Labs issues, including infrastructures, purchasing new instruments, operation, quality and standardizations.
- Human resources.
- Continuous training and development for staff and graduate students.
- Quality issues.
- Teaching undergraduate and graduate courses
- Supervising Msc students
- Research

Saudi Basic Industries Corporation (SABIC)

Analytical Technology Department

Technical team leader

Oct. 1998 – June 2012

Responsibilities:

- Supervising the catalysts characterization lab, surface and thermal labs.
- Quality management and assurance.
- Run the XPS lab.
- Analyzing samples and collaborates with researchers.
- Operate and interpret the data for FTIR, Ft-Raman and XRD.
- Worked as a backup for analytical equipment such as DSC, TGA and SEM.

King Abdulaziz City for Science & Technology Saudi Arabia**Energy institute**Researcher

July 1997 – October 1998

Responsibilities:

- Working in the solar distribution map using Data Quality Management System DQMS
- Participated in researches related to solar energy.

GENERAL INFORMATION

Nationality: Saudi Arabia

Date of birth: 28 Jun 1974

Marital status: Married