

Zeyad A. Alahmed, Ph.D

Associate Professor
Dept. of Physics and Astronomy
College of Science
King Saud University
zalahmed@ksu.edu.sa

Education:

- Ph.D Microelectronics-Photonics in May 2007, the University of Arkansas, Fayetteville, AR
- M.S. in Physics - Laser Spectroscopy - in May 2003, the University of Arkansas, Fayetteville, AR
- B. Ed. in Physics in Jun 1996, King Saud University in Riyadh, Saudi Arabia

Work experiences:

- 2013-current, Associate Professor at the Department of Physics, King Saud Univ., Riyadh, KSA.
- 2007-2013, Assistant Professor at the Department of Physics, King Saud Univ., Riyadh, KSA.
- 2004-2007, Research Assistant at the Department of Physics, UAF.
- 1997-2007, TA at the Department of Physics, King Saud Univ., Riyadh, KSA.
- 1996-1997, Physics Teacher at the Diplomatic Quarters High School in Riyadh, KSA.
- In the summer of 1996, the Saudi Arabian Standards Organization (SASO)

Skills and experiences:

- Theoretical experiences:
 - Expert in First-principles calculation method with DFT.
 - Expert in WIEN2k, Abinit, PWSCF, CASTEP, and VASP.
 - Expert in theoretical modeling of materials in nanostructures.
 - Expert in Mathematica, Mathcad, Maple, Matlab, Jmol, CaRIne Crystallography, Crystallmaker, Gnuplot, Xmgrace, and Origin.
- Experimental experiences:
 - Expert in:
 - ultrashort pulse laser spectroscopy.
 - operation and alignment of different types of lasers including femtosecond and attosecond lasers.
 - absorption characterization techniques
 - photoluminescence excitation spectroscopy (PLE)
 - operation of vacuum systems

- designing electronic circuits
- Proficient in:
 - operating various signal-processing equipment
 - minor machining and soldering
 - designing glass sample cells
- Familiar with:
 - variety of optical equipment and components
 - semiconductors nanostructures technology: optoelectronic applications, growth, Materials & Devices
 - growth by PLD, MBE and MOCVD
 - characterization with AFM, SEM and TEM.
- Computer skills:
 - Expert in most of the Unix, Linux and Windows operating systems.
 - Proficient in developing codes using Fortran.
 - Proficient in LaTeX, MS Office, MS Project, and others.

Research experiences:

- Scientific visit to LMU on summer 2009.
- Scientific visits to MPQ on summer 2010, summer 2011, summer 2012, Nov 2012, Feb 2013, Nov 2013.
- Development of an intense MHz-rate coherent XUV source in the framework of the Nobel program in KSU with Max Planck Institute of Quantum Optics in Garching, Germany.
- Photothermal deflection spectroscopy (PTDS) on different atoms such as Na and Rb using two-photon absorption. We have developed a theory of two-photon PTDS. Also, we have developed a detection technique for PTDS that has a significant improvement in the signal-to-noise ratio and in the frequency bandwidth compared with those available with current techniques.
- Studying chemical potentials and formation energy of a vacancy in perovskite structure using first-principles calculation method.
- Investigating effects of in-plane strains on structural, electronic, and electrical properties of polar semiconductors using first-principles calculation.
- Investigating structural, electronic, and optical properties of several organic and inorganic compounds using first-principles calculations.

Publications:

1. **Z. Al-Ahmed**, Y. J. Li, and R. Gupta, Review of Scientific Instruments, 74, 349 (2003).

2. **Z. Alahmed** and R. Gupta, Appl. Phys. B 79, 741-479 (2004).
3. A. Sharma, G. Ycas, **Z. Alahmed**, and R. Gupta, "Detection of photothermal deflection signals with conjugate masks," Appl. Opt. 44, 3110-3116 (2005).
4. **Z. Alahmed** and H. Fu, "First-principles determination of chemical potentials and vacancy formation energy in PbTiO₃ and BaTiO₃," Physical Review B 76, 224101 (2007).
5. **Z. Alahmed** and H. Fu, "Polar semiconductor ZnO under inplane tensile strain," Physical Review B 77, 045213 (2008).
6. Ioachim Pupeza, Tino Eidam, Jens Rauschenberger, Birgitta Bernhardt, Akira Ozawa, Ernst Fill, Alexander Apolonski, Thomas Udem, Jens Limpert, **Zeyad A. Alahmed**, Abdallah M. Azzeer, Andreas Tünnermann, Theodor W. Hänsch, and Ferenc Krausz, "Power scaling of a high repetition rate enhancement cavity," Optics Letters 35, 2052 (2010).
7. A. Wirth, M. Hassan, I. Grguras, J. Gagnon, A. Moulet, T. Luu, R. Santra, **Z. Alahmed**, A. M. Azzeer, V. Yakovlev, V. Pervak, F. Krausz, and E. Goulielmakis, "Synthesized light transients" Science (2011). DOI: 10.1126/science.1210268
8. C. Aydın, Sh. A. Mansour, **Z. A. Alahmed** and F. Yakuphanoglu, "Structural and optical characterization of sol-gel derived boron doped Fe₂O₃ nanostructured films" J Sol-Gel Sci Technol 62 (2012) 397-403. DOI: 10.1007/s10971-012-2740-8
9. M. S. Abu El-saddek, I. S. Yahia, **Z. A. Alahmed**, F. Yakuphanoglu, "Photoluminescence and optical dispersion parameters of N-doped ZnO nano-fiber thin films" Journal of Electroceramics 30 (2013) 152-158. DOI: 10.1007/s10832-012-9777-5
10. AH Reshak, IV Kityk, OV Parasyuk, AO Fedorchuk, **ZA Alahmed**, N AlZayed, H Kamarudin, S Auluck, "X-ray photoelectron spectrum, X-ray diffraction data, and electronic structure of chalcogenide quaternary sulfide Ag₂In₂GeS₆: experiment and theory" Journal of Materials Science 48 (2013) 1342-1350. DOI: 10.1007/s10853-012-6879-z
11. **Z. A. Alahmed**, A.H. Reshak, "DFT calculation of the electronic structure and optical properties of two strontium germanium nitrides: α -Sr₂GeN₂ and β -Sr₂GeN₂" Journal of Alloys and Compounds 559 (2013) 181-187. DOI:10.1016/j.jallcom.2013.01.062
12. **Z.A. Alahmed**, Sh.A. Mansour, M. Enver Aydın, F. Yakuphanoglu, "Hybrid photodiodes based on 6,13-bis(triisopropylsilylethynyl) pentacene:poly[2-methoxy-5-(2-ethyl) hexoxy-phenylenevinylene]/p-silicon" Solid State Communications 163 (2013) 23-27. DOI:10.1016/j.ssc.2013.03.015
13. **Zeyad A. Alahmed**, "Effects of in-plane tensile strains on structural, electronic, and optical properties of CdSe" Solid State Sciences 21 (2013) 11-18. DOI:10.1016/j.solidstatesciences.2013.03.021
14. **Zeyad A. Alahmed** and F. Yakuphanoglu, "The effects of microfibers on electrical characteristics of zinc oxide thin film transistor" Microelectronic Engineering 110 (2013) 25-28. DOI:10.1016/j.mee.2013.04.023
15. M. Gedikpınar, M. Çavaş, **Zayed A. Alahmed**, F. Yakuphanoglu, "Electronic properties of Al/p-Si/C₇₀/Au MIS-type diode" Superlattices and Microstructures

- 59 (2013) 123-132. DOI:10.1016/j.spmi.2013.03.028
16. **Z. A. Alahmed**, Z. Serbetçi, F. Yakuphanoglu, "Effects of La dopant on nanocluster size and optical band gap of CdO films prepared by sol-gel method" *Acta Physica Polonica A* 124 (2013) 125-7. DOI:10.12693/APhysPolA.124.125
 17. **Z. A. Alahmed**, A.H. Reshak, "DFT calculation of the electronic and optical properties of Ag₂PdO₂ from X-ray and Neutron crystallographic data" *Solid State Sciences* 22 (2013) 50-55. DOI:10.1016/j.solidstatesciences.2013.05.011
 18. A.H. Reshak, A.O. Fedorchuk, G. Lakshminarayana, **Z.A. Alahmed**, H. Kamarudin, S. Auluck, "Influence of different exchange correlation potentials on band structure and optical constant calculations of ZrGa₂ and ZrGe₂ single crystals" *Computational Materials Science* 78 (2013) 134-139. DOI:10.1016/j.commatsci.2013.04.056
 19. W. A. Farooq, F. N. Al-Mutairi, **Z. Alahmed**, "Analysis of Rocks around Capital of Kingdom of Saudi Arabia using Laser Induced Breakdown Spectroscopy" *Optics and Spectroscopy* 115 (2013) 241-248. DOI: 10.1134/S0030400X13080079
 20. **Z.A. Alahmed**, M. Cavas, A.A.M. Farag, F. Yakuphanoglu, "Photosensors based on Ni-doped ZnO/p-Si junction prepared by sol-gel method" *Journal of Electroceramics* 31 (2013) 298-308. DOI:10.1007/s10832-013-9839-3
 21. **Z. A. Alahmed**, D.-T. Phan, G.-S. Chung, F. Yakuphanoglu, "Photovoltaic and phototransient interface states properties of nanocomposite Fe₃O₄-graphene/n-Si/Al photodiode" *Superlattices and Microstructures* 63 (2013) 36-46. DOI:10.1016/j.spmi.2013.07.012
 22. A. Haddou, H. Khachai, R. Khenata, F. Litimein, A. Bouhemadou, G. Murtaza, Z. A. Alahmed, S. Bin-Omran, B. Abbar, "Elastic, optoelectronic and thermal properties of cubic CSi₂N₄: An ab initio study" *J Mater Sci* 48 (2013) 8235-8243. DOI:10.1007/s10853-013-7636-7
 23. M. Ould Kada, T. Seddik, A. Sayede, R. Khenata, A. Bouhemadou, E. Deligoz, **Z. A. Alahmed**, S. Bin Omran, D. Rached "Elastic, electronic and thermodynamic properties of Rh₃X (X = Zr, Nb and Ta) intermetallic compounds" *Int. J. Mod. Phys. B* 28 (2014) 1450006. DOI: 10.1142/S0217979214500064
 24. R.K. Gupta, **Z. A. Alahmed**, F. Yakuphanoglu, "Graphene oxide based low cost battery" *Materials Letters* 112 (2013) 75-77. DOI: 10.1016/j.matlet.2013.09.011
 25. H. Tecimer, H. Uslu, **Z.A. Alahmed**, F. Yakuphanoglu, Ş. Altındal "On the frequency and voltage dependence of admittance characteristics of Al/PTCDA/P-Si (MPS) type Schottky barrier diodes (SBDs)" *Composites Part B: Engineering* 57 (2014) 25-30. DOI: 10.1016/j.compositesb.2013.09.040
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 27. A. H. Reshak, **Z. A. Alahmed**, S. Azam, "Electronic Structure, Electronic Charge Density and Optical Properties Analyses of Rb₂Al₂B₂O₇ Compound: DFT Calculations" *Int. J. Electrochem. Sci.*, 9 (2014) 975 - 989. (<http://www.electrochemsci.org/papers/vol9/90200975.pdf>)
 28. A. Djied, H. Khachai, T. Seddik, R. Khenata, A. Bouhemadou, N. Guechi, G.

- Murtaza, S. Bin-Omran, **Z.A. Alahmed**, M. Ameri, "Structural phase transition, mechanical and optoelectronic properties of the tetragonal NaZnP: Ab-initio study" *Computational Materials Science* 84 (2014) 396-403. DOI: 10.1016/j.commatsci.2013.11.041
29. G. Murtaza, S.K. Gupta, T. Seddik, R. Khenata, **Z.A. Alahmed**, R. Ahmed, H. Khachai, P.K. Jha, S. Bin Omran, "Structural, electronic, optical and thermodynamic properties of cubic REGa₃ (RE = Sc or Lu) compounds: Ab initio study" *Journal of Alloys and Compounds* 597 (2014) 36–44. DOI: 10.1016/j.jallcom.2014.01.203
 30. Hayatullah, G. Murtaza, R. Khenata, S. Muhammad, A.H. Reshak, Kin Mun Wong, S. Bin Omran, **Z.A. Alahmed**, "Structural, chemical bonding, electronic and magnetic properties of KMF₃ (M = Mn, Fe, Co, Ni) compounds" *Computational Materials Science* 85 (2014) 402-408. DOI: 10.1016/j.commatsci.2013.12.054
 31. W A. Farooq, W. Tawfik, F. N. AL-Mutairi and **Z. A. Alahmed**, "Qualitative analysis and plasma characteristics of soil from desert area using LIBS technique" *J. Opt. Soc. Korea* 17 (2013) 548-558.
 32. W. Tawfik, W. A. Farooq, Z. A. Alahmed, "Damage Profile of HDPE Polymer using Laser-Induced Plasma" *J. Opt. Soc. Korea* 18 (2014) 50-54.
 33. M. Cavas, **Z. A. Alahmed**, H. A. Albrithen, F. Yakuphanoglu "Photoreponse and electrical properties of Al/ nanostructure NiFe₂O₄/p-Si/Al photodiode", *J Electroceramics* 32 (2014) 163-168. DOI:10.1007/s10832-013-9862-4
 34. A.H. Reshak, H. Kamarudin, **Z.A. Alahmed**, S. Auluck, Jan Chyský, "Density functional study of electronic, charge density, and chemical bonding properties of 9-methyl-3-Thiophen-2-YI-Thieno [3,2-e] [1, 2, 4] Thiazolo [4,3-c] pyrimidine-8-Carboxylic acid ethyl ester crystals" *Journal of Magnetism and Magnetic Materials* 361 (2014) 206-211. DOI: 10.1016/j.jmmm.2014.02.067
 35. Naeem Ullah, G. Murtaza, **Z. A. Alahmed**, A. H. Reshak, R. Khenata, "Phase transition, electronic and optical properties of NaCl under pressure" *Modern Physics Letters B* 28 (2014) 1-9. DOI: 10.1142/S0217984914500626
 36. Naeem Ullah, G. Murtaza, R. Khenata, Kin Mun Wong, **Z. A. Alahmed**, "Phase transition, electronic and optical properties of mercury chalcogenides under pressure" *Phase Transitions* 87 (2014) 571-581. DOI:10.1080/01411594.2014.886110
 37. Saleem Ayaz Khan, A. H. Reshak, **Z. A. Alahmed**, "Electronic band structure and optoelectronic properties of SrCu₂X₂ (X = As, Sb): DFT calculation", *J Mater Sci* 49 (2014) 5208–5217. DOI 10.1007/s10853-014-8230-3
 38. H. Carstens, N. Lilienfein, S. Holzberger, C. Jocher, T. Eidam, J. Limpert, A. Tunnermann, J. Weitenberg, D. C. Yost, A. Alghamdi, **Z. Alahmed**, A. Azzeer, A. Apolonski, E. Fill, F. Krausz, I. Pupeza, "Megawatt-scale average-power ultrashort pulses in an enhancement cavity", *39 Opt. Lett.* (2014) 2595-2598. DOI: 10.1364/OL.39.002595
 39. A. S. Alnaser, M. Kübel, R. Siemering, B. Bergues, Nora G Kling, K. J. Betsch, Y. Deng, J. Schmidt, **Z. A. Alahmed**, A. M. Azzeer, J. Ullrich, I. Ben-Itzhak, R. Moshhammer, U. Kleineberg, F. Krausz, R. de Vivie-Riedle, M. F. Kling, "Subfemtosecond steering of hydrocarbon deprotonation through superposition of

- vibrational modes”, 5 Nature Communications (2014) 1-6. DOI: 10.1038/ncomms4800
40. Naeemullah, G. Murtaza, R. Khenata, A. Safeer, **Z. A. Alahmed**, S. Bin Omran, “Shift of band gap from indirect to direct and optical response of CaO by doping S, Se, Te” 91 Computational Materials Science (2014) 43-49. DOI: 10.1016/j.commatsci.2014.04.039
 41. Wilayat Khan and A.H. Reshak and Khairrel Rafezi Ahmad and **Z. A. Alahmed**, “Magnetic and thermoelectric properties of three different atomic ratio of Bi/Mn in BiMn2O5: DFT approach”, Journal of Magnetism and Magnetic Materials 369 (2014) 234 – 242. <http://dx.doi.org/10.1016/j.jmmm.2014.06.048>
 42. Ali H.Reshak, K.Plucinski, M.J.Filep, M. Yu. Sabov, I.Barchij, A.O.Fedorchuk , M. Kowar-Pokladko, **Z. A. Alahmed**, H. Kamarudin, “Photoinduced Deformation in the Ti_4SnSe_3 Single Crystals”, Int. J. Electrochem. Sci., 9 (2014) 6068 - 6073 (<http://www.electrochemsci.org/papers/vol9/91106068.pdf>)
 43. A. H.Reshak, Sin Tee Tan, Fitri Yeni Naumar, A.A.Umar, M.Oyama, **Z. A. Alahmed**, H. Kamarudin, I.V.Kityk, “Photoinduced Nonlinear Optical Second – Order Optical Effects in the Ag-ZnO Nanorods”, Int. J. Electrochem. Sci., 9 (2014) 6352 - 6358 (<http://www.electrochemsci.org/papers/vol9/91106352.pdf>)
 44. A.H.Reshak, Anshu Singhal, Sipra Choudhury, **Z. A. Alahmed**, A.O.Fedorchuk, A.Wojciechowki, H. Kamarudin, “Photoinduced Second Harmonic Generation for the In_2O_3 Nanoparticles Embedded into the PMMA Polymers”, Int. J. Electrochem. Sci., 9 (2014) 6370 - 6377 (<http://www.electrochemsci.org/papers/vol9/91106370.pdf>)
 45. A. H. Reshak, O. M. Yanchuk, D. I. Prots, L. V. Tsurkova, O. V. Marchuk, I. V. Urubkov, V. A. Pekhnyo, O. Fedorchuk, **Z. A. Alahmed**, H. Kamarudin, “Optically Stimulated Piezoelectric Effects in the Electrochemically Synthesized ZnO Nanoparticles”, Int. J. Electrochem. Sci., 9 (2014) 6378 - 6386 (<http://www.electrochemsci.org/papers/vol9/91106378.pdf>)
 46. N.A. Noor and S. Ali and G. Murtaza and M. Sajjad and S.M. Alay-e-Abbas and A. Shaukat and **Z.A. Alahmed** and A.H. Reshak, “Theoretical investigation of band gap and optical properties of $\text{ZnO}_{1-x}\text{Te}_x$ alloys ($x = 0, 0.25, 0.5, 0.75$ and 1)”, Computational Materials Science 93 (2014) 151 - 159. DOI: 10.1016/j.commatsci.2014.06.017
 47. A. H. Reshak , O. S. Klymovych , G. L. Myronchuk , O. V. Zamuruyeva , O. F. Zmiy , **Z. A. Alahmed** , J. Chyský , Jiri Bila , and H. Kamarudin, “Glass formation and the third harmonic generation of Cu_2Se – GeSe_2 – As_2Se_3 glasses”, Journal of Applied Physics 116 (2014) 143102. DOI: 10.1063/1.4897457
 48. A.H. Reshak, Saleem Ayaz Khan, **Z. A. Alahmed**, “Investigation of electronic structure and optical properties of MgAl_2O_4 : DFT approach” Optical Materials 37 (2014) 322–326. DOI: 10.1016/j.optmat.2014.06.017
 49. A.H. Reshak and T. Slimani Tlem_ani and T. El Bahraoui and M. Taibi and K.J. Plucinski and A. Belayachi and M. Abd-Lefdil and M. Lis and **Z. A. Alahmed** and H. Kamarudin and J. Chysk_ and J. Bila, “Characterization of multiferroic $\text{Bi}_{0.8}\text{RE}_{0.2}\text{FeO}_3$ powders ($\text{RE}=\text{Nd}^{3+}, \text{Eu}^{3+}$) grown by the sol-gel method” Materials Letters 139 (2014) 104 - 107. DOI: 10.1016/j.matlet.2014.10.034
 50. A.H. Reshak, **Z. A. Alahmed**, S. Auluck, “A density functional study of

- the electronic properties of bismuth subcarbonate $\text{Bi}_2\text{O}_2\text{CO}_3$ ", *Solid State Sciences*, 38 (2014) 138-142. DOI: 10.1016/j.solidstatesciences.2014.10.012
51. R.K. Gupta, **Z. A. Alahmed**, H.A. Albrithen, F. Yakuphanoglu, "Highly Efficient Photosensor Based on Reduced Graphene Oxide", *Journal of Nanoelectronics and Optoelectronics*, 9 (2014) 474-478. DOI: 10.1166/jno.2014.1617
 52. W.A. Farooq, M. Atif, W. Tawfik, M.S. Alsalihi, **Z. A. Alahmed**, M. Sarfraz, J.P. Singh, "Study of Bacterial Samples Using Laser Induced Breakdown Spectroscopy", *Plasma Science and Technology*, 16 (2014) 1141. DOI: 10.1088/1009-0630/16/12/10
 53. H. Ullah, A. H. Reshak, K. Inayat, R. Ali, G. Murtaza, Sheraz, S. A. Khan, H. U. Din, And **Z. A. Alahmed**, "Structural, elastic, optoelectronic and optical properties of CuX ($\text{X} = \text{F}, \text{Cl}, \text{Br}, \text{I}$): A DFT study" *Journal of Optoelectronics and Advanced Materials* 16, (2014) 1493-1502.
 54. H. Ud Din, A.H. Reshak, G. Murtaza, B. Amin, R. Ali, **Z. A. Alahmed**, J. Chyský, J. Bila, H. Kamarudin, Structural, elastic, "Structural, elastic, thermal and electronic properties of M_2X ($\text{M} = \text{Sr}, \text{Ba}$ and $\text{X} = \text{Si}, \text{Ge}, \text{Sn}$) compounds in anti-fluorite structure: first principle calculations", *Indian Journal of Physics*, 89 (2015) 369-375. DOI: 10.1007/s12648-014-0585-4
 55. S. Suhaimi, M. M. Shahimin, **Z. A. Alahmed**, J. Chyský, A. H. Reshak, "Materials for Enhanced Dye-sensitized Solar Cell Performance: Electrochemical Application" *Int. J. Electrochem. Sci.* 10 (2015) 2859 - 2871.
 56. **Z. A. Alahmed**, H.A. Albrithen, A.A. Al-Ghamdi, F. Yakuphanoglu, "Optical band gap controlling of nanostructure Mn doped CdO thin films prepared by sol-gel spin coating method", *Optik - International Journal for Light and Electron Optics*, 126 (2015) 575-577. DOI: 10.1016/j.ijleo.2015.01.005
 57. H. Ullah, K. Inayat, S.A. Khan, S. Mohammad, A. Ali, Z. A. Alahmed, A.H. Reshak, "First-principles calculation on dilute magnetic alloys in zinc blend crystal structure", *Journal of Magnetism and Magnetic Materials*, 385 (2015) 27-31. DOI: 10.1016/j.jmmm.2015.02.069
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62. **Z. A. Alahmed**, A.H. Reshak, Suchada Chantrapromma and Hoong-Kun Fun, “Investigation of structural, electronic, and optical properties of the monoclinic and triclinic polymorphs of hexamethylenetetraminium 2,4-dinitrophenolate monohydrate ($\text{C}_6\text{H}_{13}\text{N}_4^+.\text{C}_6\text{H}_3\text{N}_2\text{O}_5\cdot\text{H}_2\text{O}$) compound: a DFT approach” *Materials Chemistry and Physics*, 172 (2016) 77-86. DOI: 10.1016/j.matchemphys.2015.12.063
63. Muhammad Hammad Aziz, M. Fakhar-e-Alam, Mahvish Fatima, Fozia Shaheen, Seemab Iqbal, M. Atif, Muhammad Talha, Syed Mansoor Ali, Muhammad Afzal, Abdul Majid, Thamir Shelih Al. Harbi, Muhammad Ismail, Zhiming M. Wang, M. S. AlSalhi, and **Z. A. Alahmed**, “Photodynamic Effect of Ni Nanotubes on an HeLa Cell Line” *PLoS ONE*, 11 (2016) e0150295. DOI: 10.1371/journal.pone.0150295
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65. A. Reshak, **Zeyad Alahmed**, Jiri Bila, Victor Atuchin, Bair Bazarov, Olga Chimitova, Maxim Molochev, Igor Prosvirin, Alexander Yelissev, “Exploration of the Electronic Structure of Monoclinic $\alpha\text{-Eu}_2(\text{MoO}_4)_3$: DFT-Based Study and X-ray Photoelectron Spectroscopy” *The Journal of Physical Chemistry*. DOI: 10.1021/acs.jpcc.6b01489
66. A. H. Reshak, N. A. M. A. Hambali, M. M. Shahimin, M. H. A. Wahid, N. E. Anwar, **Z. A. Alahmed**, and J. Chysky. Single brillouin frequency shifted s-band multi-wavelength brillouin-raman fiber laser utilizing fiber bragg grating and raman amplifier in ring cavity. *Optical Materials*, 60 (2016) 38–44. DOI: 10.1016/j.optmat.2016.07.008
67. A. H. Reshak, O. V. Parasyuk, H. Kamarudin, I. V. Kityk, **Z. A. Alahmed**, N. S. AlZayed, S. Auluck, A. O. Fedorchuk, and J. Chysky. Experimental and theoretical study of the electronic structure and optical spectral features of $\text{PbIn}_6\text{Te}_{10}$. *RSC Advances*, 6 (2016) 73107–73117. DOI: 10.1039/C6RA12734G

Conferences and Presentations:

1. **Z. Alahmed** and H. Fu, “First-principles determination of chemical potentials and vacancy formation energy in lead titanate and barium titanate,” a poster

- conference presented to Fundamental Physics of Ferroelectrics Conference, 2006 in Williamsburg, Virginia (poster).
2. **Z. Alahmed** and H. Fu, "Comparative study of vacancy formation energies in PbTiO₃ and BaTiO₃," an extended abstract submitted to Fundamental Physics of Ferroelectrics Conference, 2007 in Williamsburg, Virginia.
 3. **Z. Alahmed** and H. Fu, "Electronic structure and electromechanical properties in ZnO under inplane strain," An abstract submitted to 14th Semiconducting and Insulating Conference, May 15, 2007 in Fayetteville, Arkansas.
 4. **Z. Alahmed**, "First-Principles Study of Electronic Properties of CdS Thin Film Under Inplane Strains," Poster presentation submitted to The International Conference For Nanotechnology Industries: The Leading Technology of 21st Century, April 5-7, 2009 in Riyadh, SA.
 5. I. Pupeza, T. Eidam, B. Bernhardt, A. Ozawa, J. Rauschenberger, E. Fill, A. Apolonski, Th. Udem, J. Limpert, **Z. A. Alahmed**, A. M. Azzeer, T. W. Hänsch, A. Tünnermann, F. Krausz, "Power Scaling of a 78 MHz-Repetition Rate Femtosecond Enhancement Cavity." The Conference on Lasers and Electro-Optics (CLEO), (May 16-21, 2010) in San Jose, California, USA.
 6. I. Pupeza, T. Eidam, J. Kaster, B. Bernhardt, J. Rauschenberger, A. Ozawa, E. Fill, Th. Udem, M. F. Kling, J. Limpert, **Z. A. Alahmed**, A. M. Azzeer, A. Tünnermann, Th. W. Hänsch, F. Krausz, "Power scaling of femtosecond enhancement cavities and high-power applications," in Fiber Lasers VIII: Technology, Systems, and Applications, edited by Jay W. Dawson, Proceedings of SPIE Vol. 7914 (SPIE, Bellingham, WA, 2011) Paper 79141I.
 7. W. A. Farooq, F. N. Al-Mutairi and **Z. Alahmed**, "Analysis of Rocks around Capital of Kingdom of Saudi Arabia Using Laser Induced Breakdown Spectroscopy" NASLIBS 2011 North American Symposium on LIBS, Clearwater Beach, Florida, USA, on July 18-20, 2011.
 8. M Th Hassan, A Wirth, I Grguras, J Gagnon, A Moulet, TT Luu, O Razskazovskaya, S Pabst, R Santra, **Z Alahmed**, AM Azzeer, VS Yakovlev, V Pervak, F Krausz, E Goulielmakis, "Synthesis of sub-optical-cycle transients of light" Lasers and Electro-Optics (CLEO) 2012 Conference, San Jose Convention Center San Jose, CA, USA on May 6-11 May 2012.
 9. Mohammed Hassan, Adrian Wirth, Ivanka Grguras, Tran Trung Luu, Antoine Moulet, Vladislav Yakovlev, Justin Gagnon, Olga Razskazovskaya, Robin Santra, Stefan Pabst, Abdallah M Azzeer, **Zeyad A Alahmed**, Vladimir Pervak, Ferenc Krausz, Eleftherios Goulielmakis, "Attosecond physics with Synthesized Transients of Light" Laser Science 2012, Rochester, NY, USA (Optical Society of America) Oct 14, 2012.
 10. Essa S. Alsalmani, Anwar Q. Alanazi, Joselito P. Labis, Ahmed M. Elnaggar, **Zeyad A. Alahmed**, and Hamad H. Albrithen "Investigating Barium Zinc Oxide Alloys Grown by Pulsed Laser Deposition" 17th European Molecular Beam Epitaxy Workshop, Euro-MBE 2013, March 10-13, 2013, Levi, Finland.
 11. **Z. A. Alahmed**, H. A. Albrithen, A.M. El-Naggar, "Structural, electronic, and optical properties of Ba_{1-x}Zn_xO" Bulletin of the American Physical Society 2013.
 12. Anwar Q. Alanazi, Essa Alfaifi, Joselito P. Labis, **Zeyad A. Alahmed**, Ahmed M.

- Elnaggar, Hamad A. Albrithen, "Investigating Strontium Zinc Oxide Alloys Grown by Pulsed Laser Deposition" Oral presentation, 2013 MRS Spring Meeting & Exhibit, April 1-5, 2013, San Francisco, California.
13. Joselito LABIS, Anwar ALANAZI, Mahmoud HEZAM, Hamad ALBRITHEN, Mansour ALHOSHAN, Ahmed EL-NAGGAR, **Zeyad ALAHMED**, "Optimized Growth of Alloyed ZnO Nanostructures (Nanorods, Nanoworms, Nanowalls, and Nanoflowers) by Pulsed Laser Deposition Technique" ORAL PRESENTATION in 7th International Conference on Materials for Advanced Technologies ICMAT2013, on June 30-July5, 2013, Suntec, Singapore.
 14. J. Labis, A. Alanazi, E. Alsalmami, H. Alshehrany, M. Almutairy, A. Elnaggar, **Z. Alahmed**, H. Albrithen, "Optical properties of PLD-grown thin-films of Ba-ZnO, Ca-ZnO, and Sr-ZnO alloys" oral presentation at the IVC-19/ICN+T 2013/ICSS-15/ITFPC 2013/MIATEC 2013/CIP 2013/RSD 2013 Congress, September 9-13, 2013, Paris, France.
 15. Ali S Alnaser, K. Betsch, R. Siemering, B. Bergues, N. G. Kling, I. Ben-Itzhak, Y. Deng, **Z. A. Alahmed**, A. M. Azzeer, R. Moshhammer, J. Ulrich, U. Kleineberg, R. de Vivie-Riedle, F. Krausz, M. F. Kling, "Sub-femtosecond Control of Hydrogen-Bond Rearrangement" 2013 Joint Meeting of the APS Division of Atomic, Molecular & Optical Physics and the CAP Division of Atomic, Molecular & Optical Physics, Volume 58, Number 6 Monday–Friday, June 3–7, 2013; Quebec City, Canada.
 16. Walid Tawfik, W Aslam Farooq, **Zeyad A. Alahmed**, M M Sarfraz and Fahrettin Yakuphanoglu "Characterization and Analysis of Nanostructured CdO Thin Film using LIBS Technique" The Second Saudi International Electronics, Communications and Photonics Conference, SIECPC13, Riyadh, Saudi Arabia, 27-30 April, 2013.
 17. Walid Tawfik, Aslam Farooq and Zeyad Alahmed, "Nanoscale Depth Profile of HDPE using Laser Plasma Spectroscopy" 2013 IEEE PS Annual Meeting.
 18. Anwar Alanazi, Essa Alfaifi, Hassen Alshahrani, Mudhi Almutairi, Joselito P. Labis, Ahmed Alyamani, **Zeyad A. Alahmed**, Ahmed Elnaggar, Asghar Kayani, Hamad A. Albrithen, "Strontium Doped ZnO Grown by Pulsed Laser Deposition: Structural and Optical Properties" ICCGE 2013.
 19. H. A. Albrithen, et al. "Refractive Index Variation of Zn-rich BaZnO Alloys Grown by Pulsed Laser Deposition", APS March Meeting 2014, Mar 3-7, 2014.
 20. H. Carstens, N. Lilienfein, S. Holzberger, C. Jocher, T. Eidam, J. Limpert, A. Tünnermann, J. Weitenberg, A. Malgamdi, **Z. Alahmed**, A. Azzeer, A. Apolonski, E. Fill, I. Pupeza, and F. Krausz, "Thermal limitations for power scaling of femtosecond enhancement cavities" HILAS conference, held 18-20 march 2014 in Berlin.

Community Services and Activities to KSU:

- Participated in organizing The International Conference For Nanotechnology Industries: The Leading Technology of 21st Century,

April 5-7, 2009 in Riyadh, SA. From Nov 2008 to April 2009.

- Participate in teaching at Hail University Laser Physics course in the 2nd semester 1429-1430 (Mar 2009 – Jun 2009), within the program of graduate studies in Hail University under the supervision of King Saud University.
- Participate in the organizing committee of HONET2011 at KSU.
- Chair of the organizing committee of “interdisciplinary studies” workshop on May 24, 2011.
- Participated as in organizing the workshop “Your Opinion is our concern” by Dubiety of Vice Rector of Educational and Academic Affairs at KSU. (5-6/4/1433H)
- Participated as chair of organizing the event of “Affiliation enhancement of KSU members” organized by Dubiety of Vice Rector of Educational and Academic Affairs at KSU. Year of 1333/1334H.
- Participated in organization of the opening ceremony of the KSU satellite lab in MPQ in Germany under the collaboration between KSU and MPQ.
- Supervising 4 Bachelor students from College of Eng. on summer training in Max Planck Institute in Germany for 2 months. Summer 2011.
- Supervising 8 Bachelor students from College of Eng. on summer training in Max Planck Institute in Germany for 2 months. Summer 2012.
- Participating in building an advance attosecond lab at KSU since 2012.

Reviewer of Scientific works:

- A member of the scientific committee of HONET2012.
- A member of the scientific committee of HONET2011.
- Papers submitted by Graduate Students to the First conference of Ministry of Higher Educations for students.

Academic Professional Membership:

- General Supervisor of the Internal Scholarship Program in KSU, since Jan 2010
- Member of Supervising committee for the Improving the Education and studies planes Projects since Mar 4, 2013.
- Member of e-learning committee in the college of Science from Feb 1, 2008 to Feb 1, 2011
- Member of Examination committee of College of Science from 2010 to 2011
- Member of PhD program affairs at Physics and Astronomy Department from Oct 8, 2011.
- Director of Laser Physics and Spectroscopy Group in the department of Physics and Astronomy, KSU, since Jan 2009
- Member of the developing new B.Sc. academic program and plan studies committee- Physics and astronomy, King Saud University, from 8-10-1432H to 8-10-1433H
- Member of American Physical Society (APS)
- Member of Optical Society of America (OSA)

- Member of the European Physical Society (EPS)
- Director of the HAZ HPC cluster at KSU and Electronic Portal of VPEAA since Jan 2010.
- Member of High Performance Computing (HPC- RedDiamond) at the University of Arkansas, since 2004

Awards:

- Award of Deputy of Vice Rector for Graduate Study and Scientific Research for publishing in Science journal in the year of 2011.
- College of Science Award for distinguished scientific researcher (2012).
- Selected as a leader for Student Project Planning, University of Arkansas, August 2006 to May 2007
- Recipient of the First Microelectronics-Photonics Monthly Research Efficiency Award (2006)