

# CURRICULUM VITAE

## **Yahya Al-Khatatbeh**

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### **1. Education**

- Ph.D. (Physics) 2010, New Mexico State University, Las Cruces, New Mexico, USA
- M.Sc. (Physics) 2008, New Mexico State University, Las Cruces, New Mexico, USA
- M.Sc. (Physics) 2001, University of Jordan, Amman, Jordan
- B.Sc. (Physics) 1994, Mu'tah University, Mu'tah, Jordan

### **2. Ph.D. Dissertation**

*High-Pressure Behavior of Transition-Metal Dioxides  $TiO_2$ ,  $ZrO_2$  and  $HfO_2$  as Determined by Synchrotron X-ray Diffraction and Density-Functional Theory, New Mexico State University, Las Cruces, New Mexico, USA.*

### **3. Employment**

#### **Academic Positions**

- Associate Professor, Department of Basic Sciences, Princess Sumaya University for Technology, Amman, Jordan  
September, 2018 – present
- Assistant Professor, Department of Basic Sciences, Princess Sumaya University for Technology, Amman, Jordan  
September, 2013 – September, 2018
- Visiting Faculty and Research Associate (Visiting Assistant Professor) , Bard College at Simon's Rock, Great Barrington, Massachusetts, USA  
September, 2011 – July, 2013
- Visiting Research Scholar, Department of Materials Science and Engineering, Rensselaer Polytechnic Institute, Troy, New York, USA (in collaboration with Bard College at Simon's Rock)  
October, 2011 – July, 2013
- Postdoctoral Associate, Yale University, Department of Geology and Geophysics, New Haven, Connecticut, USA  
September, 2010 – August, 2011
- Research Assistant, New Mexico State University, Department of Physics, Las Cruces, New Mexico, USA  
May, 2006 – July, 2010
- Teaching Assistant, New Mexico State University, Department of Physics, Las Cruces, New Mexico, USA  
August, 2005 – May, 2006

- Instructor, Al-Hussein Bin Talal University, Department of Physics, Ma'an, Jordan  
September, 2001 – August, 2005

#### **Administrative Positions**

- Chairman of Department of Basics Sciences, King Abdullah II School of Engineering, Princess Sumaya University for Technology, Amman, Jordan – September, 2017 – present.

#### **4. Research Interests**

- Using high-resolution synchrotron-based x-ray diffraction to determine crystal structure, phase transitions and equations of state of materials at high pressure
- Using the laser-heated diamond-anvil cell (LHDAC) to study the behavior of materials under extreme conditions
- Studying the effect of pressure and/or temperature on technologically important nanomaterials using synchrotron-based x-ray diffraction
- Using Raman spectroscopy to study the high-pressure behavior of materials
- Using density-functional theory based *ab-initio* computations in high pressure physics in conjunction with experiments
- Studying the mechanical strength of materials at high pressure using density functional theory
- Using Electron Back Scattered Diffraction (EBSD) to study the solidification textures in directionally solidified alloys and their deformation mechanism

#### **5. Membership in Scientific Societies and Associations**

- Member of Advanced Photon Source (APS) users group
- Member of Advanced Light Source (ALS) users group
- Member of Cornell High Energy Synchrotron Source (CHESS) users group
- Member of the Jordanian Physics Society

#### **6. Honors and Awards**

- Department of Physics Merit-Based award, New Mexico State University, May, 2009.
- Graduate Assistantship award, Graduate School, New Mexico State University, May, 2008.

## 7. Teaching Experience

- ***Undergraduate Courses***

Physics I, Physics II, Physics III, Electromagnetics I, Mathematical Physics I, Heat and Waves, Classical Mechanics, Properties of Matter, Physics Lab I, Physics Lab II, Electronics Lab, and other introductory courses for non-science students (General Science I and II), Basic Concepts in Chemistry.

## 8. Supervision of Graduate Research

*Co-advisor* for **Emad Bani Ali** from Mu'tah University/Master's student in Physics 2016-2018/Thesis title: "Field Emission from Carbon Nanotubes and its Potential Application as an Electron Source", thesis defense date: January, 2018.

## 9. Membership of Committees

- **National and International**

- Member of the organizing committee of "1st International Conference on Current Nanotechnology and its Applications" ICCNA-2018, Irbid, Jordan, April 10-12, 2018
- Member of the organizing committee of "International Conference on Advanced Materials" ICAM-2017, Irbid, Jordan, July 10-13, 2017
- Member of the organizing committee of "Jordanian Life Sciences for Sustainable Development", Amman, Jordan, April 27-29, 2017

- **University**

- Member of the Higher Education Committee, King Abdullah II School of Engineering, Princess Sumaya University for Technology, Amman, Jordan, September, 2018 - 2019
- Member of the Scientific Research Committee, King Abdullah II School of Engineering, Princess Sumaya University for Technology, Amman, Jordan, September, 2017 - 2018
- Member of the Admission Exam Committee at Princess Sumaya University for Technology, Amman, Jordan, 2017
- Member of the Social Committee at Princess Sumaya University for Technology, Amman, Jordan, 2014-2015

## 10. Professional and Scientific Meetings

### *Scientific Meetings Organized*

- 1st International Conference on Current Nanotechnology and its Applications ICCNA-2018, Irbid, Jordan, April 10-12, 2018
- International Conference on Advanced Materials ICAM-2017, Irbid, Jordan, July 10-13, 2017
- Jordanian Life Sciences for Sustainable Development, Amman, Jordan, April 27-29, 2017

### *Participation in Scientific meetings*

1. *International Conference on Advanced Materials ICAM-2017*, Jordan University of Science and Technology/Irbid, Jordan, July, 2017.

2. *Frontiers in Theoretical and Applied Physics FTAPS-2017*, American University of Sharjah/Sharjah, UAE, February, 2017.
3. *12<sup>th</sup> SESAME Users' Meeting*, Amman, Jordan, November, 2014.
4. *Building International Networks for Enhancement of Research in Jordan*, Princess Sumaya University for Technology, Amman, Jordan, April, 2014.
5. *Consortium for Materials Properties Research in Earth Sciences (COMPRES) Annual Meeting*, Williamsburg, Virginia, USA, June, 2011.
6. *Stewardship Science Academic Alliances (SSAA) Symposium*, Washington, DC, USA, February, 2011.
7. *American Geophysical Union Fall Meeting*, San Francisco, California, USA, December, 2010.
8. *American Physical Society March Meeting*, Portland, Orlando, USA, March, 2010.
9. *Graduate Research and Arts Symposium*, NMSU, Las Cruces, New Mexico, USA, March, 2010.
10. *Stewardship Science Academic Alliances (SSAA) Symposium*, Washington, DC, USA, January, 2010.
11. *American Geophysical Union Fall Meeting*, San Francisco, California, USA, December, 2009.
12. *Mineralogical Society of America Short Course: Theoretical and Computational Methods in Mineral Physics*, Berkeley, California, USA, December, 2009. **Workshop.**
13. *Laser Heating the diamond anvil cell (DAC): Where we are and where we are going*, Berkeley, California, USA, December, 2009. **Workshop.**
14. *Graduate Research and Arts Symposium*, New Mexico State University, Las Cruces, New Mexico, USA, April, 2009.
15. *American Physical Society March Meeting*, Pittsburgh, Pennsylvania, USA, March, 2009.
16. *Carnegie/DOE Alliance Center workshop*, Argonne National Laboratory, Illinois, USA, February, 2009. **Workshop.**
17. *American Geophysical Union Fall Meeting*, San Francisco, California, USA, December, 2008.
18. *Fourth Jordanian workshop on Synchrotron Radiation Applications*, University of Jordan, Amman, Jordan, June, 2008. **Workshop.**
19. *Graduate Research and Arts Symposium*, New Mexico State University, Las Cruces, New Mexico, USA, April 2008.
20. *American Geophysical Union Fall Meeting*, San Francisco, California, USA, December, 2007.

21. *National School on X-ray and Neutron Scattering*, Argonne National Laboratory, Illinois, USA, August, 2007. **Workshop.**
22. *Graduate Research and Arts Symposium*, New Mexico State University, Las Cruces, New Mexico, USA, April, 2007.
23. *American Physical Society March Meeting*, Denver, Colorado, USA, March, 2007.
24. *American Physical Society Four-Corners Meeting*, Logan, Utah, USA, October, 2006.

## **11. Publications**

1. **Al-Khatatbeh, Y**, Tatawneh, K, Al-Taani, H, and Lee, K. K. M.; *Theoretical and experimental evidence for a post-cotunnite phase transition in hafnia at high pressures*, Journal of Superhard Materials, 2018, , 40 (6), 2018, 374–383.
2. **Al-Khatatbeh, Y**, Tarawneh, K, and Hamad, B; *The prediction of a new high-pressure phase of hafnia using first-principles computations*, IOP Conference Series: Materials Science and Engineering, 305, 2018, 012006.
3. Al-Taani,H, Tarawneh, K, **Al-Khatatbeh, Y**, and Hamad, B; *The high-pressure stability of Ni<sub>2</sub>In-type structure of ZrO<sub>2</sub> with respect to OII and Fe<sub>2</sub>P-type phases: A first-principles study*, IOP Conference Series: Materials Science and Engineering, 305, 2018, 012016.
4. **Al-Khatatbeh, Y** and Lee, K. K. M.; *From superhard to hard: A review of transition metal dioxides TiO<sub>2</sub>, ZrO<sub>2</sub>, and HfO<sub>2</sub> hardness*, Journal of Superhard Materials, 36 (4), 2014, 231-245.
5. Bergman, M. I., **Al-Khatatbeh, Y**, Lewis, D. J., and Shannon, M. C.; *Deformation of directionally solidified alloys: evidence for microstructural hardening of Earth's inner core?*, Comptes Rendus Geoscience, 346, 2014, 140-147.
6. **Al-Khatatbeh, Y**, Bergman, M. I., Lewis, D. J., Mason, Z., Zhu, L, and Rosenstock, S.; *Annealing of directionally solidified alloys revisited: No loss of solidification texture in Earth's inner core*, Physics of the Earth and Planetary Interiors (PEPI), 223, 2013, 32-39.
7. **Al-Khatatbeh, Y**, Lee, K. K. M., and Kiefer, B; *Compressibility of nanocrystalline TiO<sub>2</sub> anatase*, Journal of Physical Chemistry C, 116 (40), 2012, 21635-21639.
8. **Al-Khatatbeh, Y**, Lee, K. K. M., and Kiefer, B; *Phase diagram up to 105 GPa and mechanical strength of HfO<sub>2</sub>*, Physical Review B, 82, 2010, 144106.
9. **Al-Khatatbeh, Y**, Lee, K. K. M., and Kiefer, B; *Phase relations and hardness trends of ZrO<sub>2</sub> phases at high pressure*, Physical Review B, 81, 2010, 214102.
10. **Al-Khatatbeh, Y**, Lee, K. K. M., and Kiefer, B; *High-pressure behavior of TiO<sub>2</sub> as determined by experiment and theory*, Physical Review B, 79, 2009, 134114.