



Mahmoud Abu Samak C.V

## CURRICULUM VITAE

Mahmoud Khaled Abu-Samak  
June 2021

### PERSONAL

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*Place of Birth* Jordan  
*Date of Birth* 1967  
*Marital Status* Married  
*Nationality* Jordanian  
*Work Address* Department of **Physics**, College of Science, Al-Hussein Bin Talal University, Ma'an, Jordan. Phone: +962-3-2179000 Ext.:**6309**,  
E-mail: [mabusamak@ahu.edu.jo](mailto:mabusamak@ahu.edu.jo)  
*Academic Rank (date)* Associate Professor (2010)  
*Permanent Address* 11118 Amman, Jordan. Cell Phone:+962-796872666, E-mail:  
[mabusamak@yahoo.com](mailto:mabusamak@yahoo.com)

### ACADEMIC QUALIFICATIONS

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1992 - 1996 **Ph.D.**, Solid state Physics, University of Rajasthan, Jaipur, INDIA  
1989 - 1992 **M.Sc.**, Physics, The University of Kashmir, J and K, INDIA  
2001 - 2005 **B.Sc.**, Physics, The University of Gujarat, Gujarat, INDIA

### SPECIALTY

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*General Specialization:* Physics  
*Specialization :* Solid state physics

### CAREER HISTORY

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September 2004 -Present **Associate Professor**, Department of Physics, College of Science, Al-Hussein Bin Talal University, Ma'an, Jordan.  
September 2010 - 2015 **Associate Professor**, Department of Physics, Faculty of Science, Al Baha University, Baha, Saudi Arabia



Mahmoud Abu Samak C.V



September 1997 - 2004

**Assistant Professor**, Faculty of science, Science departments,  
**Al-Zaytoonah Jordanian Private University**, Amman,  
Jordan

September 1999 - 2000

**Visiting Scientist**, Istituto Nazionale per la Fisica della  
Materia INFN National Center on nanoStructures and  
bioSystems at Surfaces (S<sup>3</sup>), via G. Campi 213/A, I-  
41100 Modena, Italy  
**Dept. of Physics, University of Modena e Reggio Emilia**  
Modena, Italy

February 2008

**Visiting Professor/Scientist**, Department of Physics and  
**Engineering Physics, University Of Saskatchewan,**  
**SK, CANADA**

## ADMINISTRATIVE EXPERIENCE

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### *Positions*

September 1997 - 2004

Chairman of basic sciences, College of Science, **Al-Zaytoonah**  
university, Amman, Jordan

### *Committees*

## HONORS, SCHOLARSHIPS, AWARDS AND GRANTS

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1993

JRF (junior research fellowship) from **UGC -India**

1994-1996

SRF (Senior Research Fellowship) from **UGC-India**



- 1996-1997 Research Associate Fellowship from European countries union (ECU).
- 1999-2000 TRIL (Training and Research in Italian Laboratory) **ICTP-Italy**
- 2007 **IAEA/SESAME** (International Atomic Energy Agency) fellowship (CLS Canadian Light source **CANADA** and ALS Advance Light Source **Berkley**, and Stanford light source **SLAC ( USA)**)

## PROFESSIONAL MEMBERSHIPS AND SERVICES \_\_\_\_\_

### *Membership(s)*

- **EXAFS Society**
- **Indaian Physical society**

### *Service(s)*

## RESEARCH INTEREST \_\_\_\_\_

We are studying the electronic structures of new and advanced materials. We are using synchrotron radiation to perform soft x-ray emission and absorption spectroscopy of systems like biomaterials, superconductors and transition metal compounds. The AREAS OF INTEREST are:

- 1) **Surface Science/ Low- dimensional and nano physics**
- 2) **Semiconductors and Superconductors.**
- 3) **Synchrotron Radiation Facilities.**
- 4) **UV Photoemission Spectroscopy.**
- 5) **X-ray Photoemission Spectroscopy.**
- 6) **X-ray Absorption Spectroscopy.**
- 7) **X-ray emission Spectroscopy.**
- 8) **High Temperature Superconductors.**
- 9) **Ultra-High Vacuum (UHV) Systems.**



Mahmoud Abu Samak C.V



## PUBLICATIONS

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*Peer-reviewed journal articles*



1. Electronic structure and energy gaps evaluation of perovskite manganite single crystals using XES and XAS spectroscopy, **Mahmoud Abu-Samak** , Shalendra Kumar b,c , Rezq Naji Aljawfi ,Mohamed A. Swillam, Journal of Electron Spectroscopy and Related Phenomena **Volume 250, July 2021, 147084**  
[doi.org/10.1016/j.elspec.2021.147084](https://doi.org/10.1016/j.elspec.2021.147084)
2. Experimental and DFT investigation of electronic structure and ferromagnetic stable state in pristine and Mn: SnO<sub>2</sub> NPs Rezq Naji Aljawfi, **M. Abu-Samak** , Shalendra Kumar, Mohamed A. Swillam , Vacuum **Volume 179, September 2020, 109536**  
[doi.org/10.1016/j.vacuum.2020.109536](https://doi.org/10.1016/j.vacuum.2020.109536)
3. Electronic structure and spontaneous magnetization in Mn-doped SnO<sub>2</sub>, Rezq Naji Aljawfi, **Mahmoud Abu-Samak**, Mohammed A. Swillam, Keun Hwa Chae, Shalendra Kumar, and John A. McLeod , **J. Appl. Phys.** **128, 045705 (2020)**  
[doi.org/10.1063/5.0012415](https://doi.org/10.1063/5.0012415)
4. Engineering the Optical properties of Cu doped CeO<sub>2</sub> NCs for Application in white LED Kavita Kumari, Rezq Naji Aljawfi , A. K. Chawla , Rajesh Kumar , P. A. Alvi , Adil Alshoaibi , Ankush Vij, Faheem Ahmed , **M. Abu-samak** , Shalendra Kumar, **Ceramics International** **46 (2020) 7482–7488**  
[doi.org/10.1016/j.ceramint.2019.11.246](https://doi.org/10.1016/j.ceramint.2019.11.246)
5. Optical Gain Characteristics of a Novel InAlAs/InGaAs/GaAsSb Type-II Nano-Heterostructure. A. M. Khan<sup>1</sup>, Meha Sharma, M. I. Khan, Sandhya Kattayat, Garima Bhardwaj, M. Abu-Samak, S. H. Saeed<sup>1</sup>, P. A. Alvi, **Optik** **Volume 183, (2019), ( 842-848)**  
[doi.org/10.1016/j.ijleo.2019.01.095](https://doi.org/10.1016/j.ijleo.2019.01.095)
6. Study of Band Structure Properties of Pnictide LaO<sub>1-x</sub>F<sub>x</sub>FeAs (x = 0, 0.2) Superconducting Compound. Neena D. · K. B. Garg · P. A. Alvi · D. Kumar, Kavita S. Jerath, M. Abu-Samak, S. Dalela **J Supercond Nov Magn** **27 (2014) 1967–1972**  
[doi.org/10.1007/s10948-014-2539-7](https://doi.org/10.1007/s10948-014-2539-7)
7. Effect of thermal annealing on some electrical properties and optical band gap of vacuum evaporated Se<sub>65</sub>Ga<sub>30</sub>In<sub>5</sub> thin films. Mousa M.A. Imrana, Omar A. Lafia, **M. Abu-Samak** **Vacuum** **86, ( 2012), 1589–1594**  
[doi.org/10.1016/j.vacuum.2012.03.021](https://doi.org/10.1016/j.vacuum.2012.03.021)
8. Valence Structure of Alkaline and Post-Transition Metal Oxides John A. McLeod, Robert J. Green, Nikolay A. Skorikov, L. D. Finkelstein, **Mahmoud Abu-Samak**, Ernst Z. Kurmaev, and Alexander Moewes **Proc. of SPIE** **Vol. 7940, 79400R · © (2011)**  
[doi.org/10.1117/12.881181](https://doi.org/10.1117/12.881181)
9. Correlation effects in Ni 3d states of LaNiPO A. V. Lukoyanov, S. L. Skornyakov, J. A. McLeod, **M. Abu-Samak**, R. G. Wilks, E. Z. Kurmaev, Moewes, N. A. Skorikov, Yu. A. Izyumov, L. D. Finkelstein, V. I. Anisimov, and D. Johrendt **Phys. Rev. B** **81 (2010)235121**  
[doi.org/10.1103/PhysRevB.81.235121](https://doi.org/10.1103/PhysRevB.81.235121)
10. Band gaps and electronic structure of alkaline-earth and post-transition-metal oxides J. A. McLeod, R. G. Wilks, N. A. Skorikov, L. D. Finkelstein, **M. Abu-Samak**, E. Z. Kurmaev, and A. Moewes **Phys. Rev. B** **81 (2010) 245123**



[doi.org/10.1117/12.881181](https://doi.org/10.1117/12.881181)

11. Quantum size effects in Bi films grown on GaAs (110) **Mahmoud Abu-Samak. J. Appl. Phys. 104 (2008)** 123714  
[doi.org/10.1063/1.3046543](https://doi.org/10.1063/1.3046543)
12. Photoemission Study of Pseudomorphic Growth of Alpha-Sn on InSb Surfaces **Mahmoud Abu-Samak. IREPHY International Review of Physics 1. N.4 ( 2007)** 45-49
13. Photoemission and low-energy electron-diffraction studies of  $\alpha$ -Sn growth on InSb surfaces **Mahmoud Abu-Samak, P. Fantini, S. Gardonio, E. Magnano, C. Mariani, Physica scripta. 71 (2005)** 652-655
14.  $\alpha$ -Sn pseudomorphic growth on InSb (111) and (111) surfaces: a high resolution photoemission study , **Mahmoud Abu-Samak .Muta lil-Buhuth wad-dirasat 20 (2005)** 101-115
15. X-ray absorption study of the (Y<sub>1-x</sub>Pr<sub>x</sub>) Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub>  system S. J. Gurman, J C Amiss, **M Khaled, N L Saini, and K B Garg. J. Phys: Condens. Matter 11 (1999),** 1847-1859.
16. XPS study of Tc-depression and M-I transition in Bi<sub>2</sub>Sr<sub>2</sub>Ca<sub>1-x</sub>Cu<sub>2</sub>O<sub>y</sub>. **Mahmoud Khaled, P. Srivastava, B. R. Sekhar, K. B. Garg, S. K. Agarwal, A. V. Narlikar, and F. Studer . J. of phys & chem. of solids, 5 (1998)** 777-782.
17. Investigation of Pr valence and site occupancy in (Y,Pr)BCO BY X-ray photoemission. **M. Khaled, B. R. Sekhar, P. Srivastava, K. Kumari, and K. B. Garg Phys. Status solidi A 162 (1997)** 643-648.
18. EXAFS and XANES study of structural and electronic changes in Y<sub>1-x</sub>Pr<sub>x</sub>Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>. **M. Khaled, N. L. Saini, S. J. Gurman, J. C. Amiss, and K. B. Garg. J. Phys IV France 7 (1997)** C2-1121.
19. X-ray absorption study at Pr L<sub>3</sub> edge in (Y,Pr)Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Systems. **M. Khaled, N. L. Saini, K. B. Garg, and F. Studer. Solid State. Comms.100 (1996).** 773
20. XAFS study of Ce valence in the Ce<sub>1-x</sub>Y<sub>x</sub>Fe<sub>2</sub> system; K B Garg, M. Khaled, S. Venkatesh, F. Studer, N. H. Duc, and P. Srivastava . **Physica B 208 &209(1995)** 525-527
21. Scanning tunneling microscopy of Si/SiO<sub>2</sub> interface roughness and its dependence on growth conditions; [G. S. Shekhawat](#), Ram P. Gupta, S. S. Shekhawat, D. P.



Runthala, P. D. Vyas, P. Srivastava, S. Venkatesh, K. Mamhoud, K. B. Garg  
**Appl. Phys. Lett.** **68(1)(1996)** 114-116.

22. A Photoemission study of the influence of sputtering on Au-Bi(2212) interface; P. Srivastava, N L Saini, B R Sekhar, S Venkatesh, **M. Khaled**, S K Sharma, K B Garg, A Agarwal, Ram p Gupta, W S Khokle, H Ohkubo, and M Akinaga . **Supercond. Sci Technol** **7(1994)940**.

#### **Books and book chapters**

1. **Mahmoud Abu-Samak** and M. Shaderma "Electrical and Electronic circuit's analysis". Al Quds open university publication 2007,
2. **Mahmoud Abu-Samak** and M. Shaderma "Introduction to electronics", first edition. Al Quds open university publication 2006.

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#### **Patents**

- **N.A.**

#### **CONFERENCES AND PROCEEDINGS**

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1. A Comparative Study on Optical Characteristics of InGaAsP QW Heterostructures of Type-I and Type-II Band Alignments, G Bhardwaj, K Sandhya, R Dolia, M Abu-Samak, S Kumar, PA Alvi  
Bulletin of Electrical Engineering and Informatics 7 (1), 25-41
2. Optimization of AlGaIn QW Heterostructure for UV Applications, R Dolia, M Abu-Samak, PA Alvi, Engineering Vibration, Communication and Information Processing, 9-14
3. Simulating 1.55  $\mu\text{m}$  Optical Gain in Type-II InAlAs/InGaAs/GaAsSb Nanoscale Heterostructure  
AM Khan, G Bhardwaj, M Abu-Samak, SH Saeed, PA Alvi, IOP Conference Series: Materials Science and Engineering 594 (1), 012003
4. SSRL School on Synchrotron X-Ray Absorption Spectroscopy Techniques,  
Stanford synchrotron radiation Laboratory, California CA, May 20-22, 2008.
5. The second National workshop on synchrotron users (**SESAME**) held at Jordan University, Jordan, May 10/5/2007.
6. The first National workshop on synchrotron users (**SESAME**) held at Jordan University, Jordan, May 10/5/2006.
7. "LEED, HREELS and photoemission studies of Pseudomorphic growth of alpha-Sn on InSb surfaces", workshop on physics of semiconductor science (WPSS'04) Lattakia- Syria, May 9-





11-2004.

8. "Screw dislocation mediated growth and surface composition of c-axis oriented High Tc superconducting thin film: Scanning Tunneling Microscopy and X-ray Photoemission Spectroscopy" (published in ICITNS October 2003).
9. "Pseudomorphic growth of **alpha-Sn** on low-index InSb surfaces", (published in ICITNS October **2003**, conference at Al-Zaytoonah University, Amman, Jordan).
10. "Density of states of two-dimensional electron gas at semiconductor surfaces", 24<sup>th</sup> Annual meeting Advances in Surface and Interface Physics and Special Session of INFM Section F with the Synchrotron Light Committee, Dipartimento di Fisica, Modena (Italy), December 20-21.
11. "Investigation of Silver-YBCO interface by XPS and Electrical Measurements", MRS 1995 Spring Meeting held in San Francisco from 18-20 April, 1995.
12. "Pseudomorphic growth of alpha-Sn on low-index InSb surfaces. Sandra Gardonio, Paolo Fantini, 24<sup>th</sup> Annual meeting Advances In Surface and Interface Physics and Special Session of INFM Section F with the Synchrotron Light Committee, Dipartimento di Fisica, Modena (Italy), December 20-21, 1999.
13. "Characterization of Air formed Oxide Films on Amorphous Ti60Ni40 by EPS", Procd, 37 DAE-SSP Symp. 1994, p. 457.
14. "AFM & STS Studies of Bi-2212 Single Crystals", Procd. 37 DAE-SSP Symp. 1994, p.383

## TEACHING

### *Courses Taught-undergraduate*

Solid state physics I,II, Electronic, Digital Electronics , Electrical and Electronic circuit's analysis , Mathematical Physics I &II, Electromagnetic I & II, Classical Mechanics I & II, Electrodynamic, Modern physics, Quantum physics I & II, General Physics 101, General Physics 102, , Thermodynamics, , Heat and Waves. Low temperature physics, Superconductivity,

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### *Courses Taught-postgraduate*

- **Solid state Physics**

## SKILLS

### *Languages*





## Mahmoud Abu Samak C.V



- Arabic (native)
- English (excellent)
- Italian
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- Hindi (ordu)
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