

## CURRICULUM VITAE

[https://www.researchgate.net/profile/Mahmoud\\_Abu-Samak2](https://www.researchgate.net/profile/Mahmoud_Abu-Samak2)

### PERSONAL

**NAME :** Mahmoud Khaled  
**SURNAME :** Abu-Samak  
**BIRTH DATE :** 1967  
**BIRTH PLACE :** Amman  
**NATIONALITY :** Jordanian  
**LANGUAGES :** 1. Arabic (Mother Language)  
2. English  
3. Italian  
4. Hindi (ordu)



### MARITAL STATUS: Married

**PERMANENT ADDRESS:** Physics Department  
Al-Hussein Bin Talal University  
P.O.Box 20, Ma'an, Jordan  
e-mail: [mabusamak@ahu.edu.jo](mailto:mabusamak@ahu.edu.jo)  
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### Fellowships

- 1) 1993- JRF (junior research fellowship) from **UGC -India**
- 2) 1994-1996- SRF (Senior Research Fellowship) from **UGC-India**
- 3) 1996-1997 Research Associate Fellowship from European countries union (**ECU**).
- 4) 1999-2000- TRIL (Training and Research in Italian Laboratory) **ICTP-Italy**
- 5) 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)**)

### PRESENT POSITION

Associate Professor

### Experiences

**A) Doctoral Work:** High Temperature Superconductors (HTC). **Inda**

**B) Post-doctoral Work:** Surface Science (Low dimensional physics). **Italy**

**C) Visiting Scientist:** Nanophysics and Material Science. **Canada and USA**

*The doctoral work , Post-doctoral , present and future work are/ were carried out using the synchrotron radiation facilities as well as lab facilities using XAS, and XPS and UV spectroscopy facility at **ELETTRA (ITALY)**, **LURE (FRANCE)**, **Grenoble (FRANCE)**, and **CLRC Daresbury (ENGLAND)**. CLS Canadian Light source **CANADA** and ALS Advanced Light Source **Berkeley** and **SLAC Stanford accelerator (USA)***

## **PROFESSIONAL EXPERIENCE**

### **(1) 2004-now**

#### **Associate Professor**

Physics Department,  
Al-Hussein Bin Talal University,  
**Ma'an-Jordan**

### **(2) 1997-2004**

#### **Assistant Professor**

Faculty of Science  
Al-Zaytoonah Jordanian Private University  
**Amman-Jordan**

### **(3) 1999-2000**

#### **Visiting Scientist**

Istituto Nazionale per la Fisica della Materia  
INFM 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**

### **(4) 2008**

#### **Visiting Professor/Scientist**

Department of Physics and Engineering Physics,  
University Of Saskatchewan,  
**SK, CANADA**

### **(5) 1993 - 1996**

#### **Teaching and Research Assistant**

Department of Physics  
Rajasthan University  
**Jaipur-India**

## **AREAS OF 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.

## **EDUCATION**

- (1) Diploma** (of science) 1985  
North Al-Hashmi Secondary School  
Amman – Jordan
- (2) B.Sc.** in Physics 1985-1989  
Ahmedabad Science College  
Gujarat University  
Gujarat-India
- (3) M.Sc.** in Physics 1989-1992  
Department of Physics  
Kashmir University  
J & K- India
- (4) Ph.D.** in Physics 1992-1996  
Department of Physics, Rajasthan University, Jaipur-India

## **REFERENCES**

- 1) Prof. Alexander Moewes**  
Professor and Canada Research Chair for Materials Science with Synchrotron radiation  
Department of Physics and Engineering Physics,  
University Of Saskatchewan, **SK CANADA**  
Phone: (306) 966-6431 Fax: (306) 966-6400  
Email: alex.moewes@usask.ca
- 2) Prof. K. B. Garg**  
Emeritus Scientist, CSIR  
Physics Dept., Rajasthan  
University, Jaipur-302 004, **INDIA**  
Fax- 0091-141-511912 Tel-0091-141-511912  
email : krigarg@gmail.com
- 3) Prof. N. L. Saini**  
Dipartimento di Fisica, Universita di Roma “La Sapienza”,  
P. le Aldo Moro 2, 00185 Roma, **ITALY**  
Fax-39-06-4957697 Tel.-+39-0649914391  
Email: [Saini@roma1.infn.it](mailto:Saini@roma1.infn.it)
- 4) Prof. S. J Gurman**  
Dept. of Physics and Astronomy  
University of Leicester  
Leicester LE1 7RH  
**UK**  
Email: [sjg@leicester.ac.uk](mailto:sjg@leicester.ac.uk)

## **On going Projects**

- 1) Band gaps and electronic structure of LaCa MnO systems using synchrotron facilities.
- 2) **Designing and Simulation of some technologically important Hetero- structures through investigating their properties**

### Courses Taught:

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,

### PUBLICATIONS

#### Books

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.

#### Papers

#### Published in Refereed International Journals

1. Study of Band Structure Properties of Pnictide  $\text{LaO}_{1-x}\text{F}_x\text{FeAs}$  ( $x = 0, 0.2$ ) 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 #
2. Effect of thermal annealing on some electrical properties and optical band gap of vacuum evaporated  $\text{Se}_{65}\text{Ga}_{30}\text{In}_5$  thin films. Mousa M.A. Imrana, Omar A. Lafia, **M. Abu-Samak** **Vacuum** **86**, ( 2012), 1589–1594 #
3. 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 )
4. Correlation effects in Ni 3d states of  $\text{LaNiPO}$  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 #
5. 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 #
6. Quantum size effects in Bi films grown on GaAs (110) **Mahmoud Abu-Samak. J. Appl. Phys.** **104** (2008) 123714 #
7. 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
8. 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

9.  $\alpha$ -Sn pseudomorphic growth on InSb (111) and (  $\bar{1}\bar{1}\bar{1}$ ) surfaces: a high resolution photoemission study , **Mahmoud Abu-Samak** .Muta lil-Buhuth wad-**dirasat** 20 (2005) 101-115
10. 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.
11. 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.
12. 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.
13. 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.
14. 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
15. 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
16. 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.
17. 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.

### **Submitted Papers**

1. *Characterization of carbon-encapsulated nickel nanoparticles with soft X-ray spectroscopy* ,. **M. Abu-Samak**

### **Published in Conferences**

1. SSRL School on Synchrotron X-Ray Absorption Spectroscopy Techniques, Stanford synchrotron radiation Laboratory, California CA, May 20-22, 2008.
2. The second National workshop on synchrotron users (**SESAME**) held at Jordan University, Jordan, May 10/5/2007.
3. The first National workshop on synchrotron users (**SESAME**) held at Jordan University, Jordan, May 10/5/2006.
4. "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.

5. "Screw dislocation mediated growth and surface composition of c-axis oriented High T<sub>c</sub> superconducting thin film: Scanning Tunneling Microscopy and X-ray Photoemission Spectroscopy" (published in ICITNS October 2003).
6. "Pseudomorphic growth of **alpha-Sn** on low-index InSb surfaces", (published in ICITNS October **2003**, conference at Al-Zaytoonah University, Amman, Jordan).
7. "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.
8. "Investigation of Silver-YBCO interface by XPS and Electrical Measurements", MRS 1995 Spring Meeting held in San Francisco from 18-20 April, 1995.
9. "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.
10. "Characterization of Air formed Oxide Films on Amorphous Ti<sub>60</sub>Ni<sub>40</sub> by EPS", Procd, 37 DAE-SSP Symp. 1994, p. 457.
11. "AFM & STS Studies of Bi-2212 Single Crystals", Procd. 37 DAE-SSP Symp. 1994, p.383