

## Curriculum Vitae

**Name:** Dr. Mufeed Mahmoud Al-Maghrabi

**Rank:** Associate professor

**Field of Specialization:** Solid State Physics

**Date of Birth:** 3/3/1969

**Marital Status:** Married

**Nationality:** Jordanian

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### Education:

Degree	Specialization	Institution	Country	year
PhD	Experimental Solid State Physics	University of Sussex	UK	2001
M.Sc	Experimental Solid State Physics	University of Jordan	Jordan	1995
B.Sc	Physics	University of Jordan	Jordan	1991
Higher Diploma in Education	Curricula & Teaching	Hashemite University	Jordan	1998

**1. PhD Dissertation Title:** Thermoluminescence Spectra from Sulphates, Fluorides and Garnets Doped with Rare Earth Ions.

**2. M.Sc Dissertation Title:** Electric Field Enhanced Diffusion in Glass.

## Job Experience:

Job Title	Institution	Period
Teaching assistant	Hashemite University	Sep.1995-Dec. 1998
Lecturer	Hashemite University	Jan. 2002-March 2003
Assistant professor	Hashemite University	March 2003-Jan. 2010
Associate professor	Hashemite University	Jan. 2010- Sep. 2011
Associate professor	Umm Al Qura University	Sep. 2011-August 2015
Associate professor	Hashemite University	Sep. 2015-now

**Teaching:** I have taught the following courses:

### A) B.Sc. Courses and Labs.

Theoretical Courses	Laboratories
1. General Physics (I).	1. General Physics (I).
2. General Physics (II).	2. General Physics (II).
3. Modern Physics.	3. Advanced physics lab. (I).
4. Special Relativity.	4. Advanced physics lab. (II).
5. Mathematical Physics (I).	5. Optics.
6. Mathematical Physics (II).	6. Electronics.
7. Classical Mechanics.	
8. Quantum Mechanics (I).	
9. Electricity & Magnetism (I).	

### B) M.Sc. Courses:

1. Classical Mechanics.
2. Mathematical Physics.

## **Supervision:**

I was a co-supervisor on the following M.Sc. theses:

1. Jellium model in static fluctuation approximation, Hashemite University, 2007.
2. Study of neutral many bosonic systems in static fluctuation approximation with a potential model close to the real potential, Hashemite University, 2007.

## **Research:**

### **A) Research Experience:**

I have excellent experience of the following experimental techniques:

1. Various types of luminescence measurements like TL, CL, RL, PL etc.
2. Other optical techniques like second harmonic generation and upconversion.
3. Characterization and optimization of optical waveguides.
4. Micro-analytical techniques like Rutherford Backscattering (RBS) and resonance nuclear reaction analysis (RNRA).
5. Impedance spectroscopy.

### **B) Research Interests:**

I) Studying defect structures in insulators using luminescence and nuclear techniques. The luminescence measurements aim at better understanding of the defect types responsible for light generation, and to optimize efficient TL dosimeters. On the other hand, the nuclear techniques such as Rutherford backscattering are used to study the composition of the samples as well as the structural changes that might occur in the samples during irradiation by heavy ions. The TL Samples include natural and synthetic materials. Materials undergo first order phase transitions have received special attention as the phase transition data may be used to accurately calibrate the temperature axis of the TL glow curve. Types of measurements include Thermoluminescence (TL), Radioluminescence (RL), Cathodoluminescence (CL) and the combined effect of excitation whilst heating (e.g. RLTL or CLTL).

II) Studying the dielectric properties of polymeric materials using impedance spectroscopy.

**Academic Committees:**

1. Member, Faculty of Science and arts Council 2006/2007.
2. Member of several departmental committees including:
  - i. The examination and scheduling committee.
  - ii. Accreditation committee.
  - iii. Graduate studies and the scientific research committee.
  - iv. Social committee.
  - v. Library committee.

## **List of Publications:**

- [1] Maghrabi, M., Karali, T., Townsend, PD. and Lakshmanan AR., *Luminescence spectra of CaSO<sub>4</sub> with Ce, Dy, Mn and Ag co-dopants*, J. Phys. D: Appl. Phys. 33 (2000) 477-484.
- [2] Maghrabi, M. and Townsend, PD., *Spectral changes in the thermoluminescence of erbium in strontium fluoride*, J. Phys.: Condens. Matter, 12 (2000) 9371-9379.
- [3] Maghrabi, M., Townsend, PD. and Vazquez, G., *Low temperature luminescence from the near surface region of Nd:YAG.*, J. Phys.: Condens. Matter 13 (2001) 2497-2515.
- [4] Maghrabi, M. and Townsend, PD., *Thermoluminescence spectra of rare earth doped Ca, Sr and Ba fluorides.*, J. Phys.: Condens. Matter 13 (2001) 5817-5831.
- [5] Yang, B., Townsend, PD. and Maghrabi, M., *Optical detection of phase transitions in potassium niobate*, J. Modern Optics 48 (2001) 319-331.
- [6] Townsend, PD., Jazmati, AK., Karali, T., Maghrabi, M., Raymond, SG. and Yang, B., *Rare-earth-size effects on thermoluminescence and second-harmonic generation.*, J. Phys.: Condens. Matter 13 (2001) 2211-2224.
- [7] Townsend, PD., Yang, B, Raymond, S., Karali, T., and Maghrabi, M., *Rare-earth-size effects on TL.*, Radiation Effects & Defects in Solids 155 (2001) 83-87.
- [8] Kurt, K., Ramachandran, V., Maghrabi, M., Townsend, PD and Yang, B., *Influence of phase transitions of ice on near-surface cathodoluminescence*, J. Phys.: Condens. Matter 14 (2002) 4319-4328.
- [9] Maghrabi, M., Thörne, F and Townsend, PD., *Influence of trapped impurities on luminescence from MgO:Cr*, NIM B 191(2002) 181-185.
- [10] Townsend, PD., Maghrabi, M and Yang. B, *Luminescence detection of phase transitions*, NIM B 191(2002) 767-771.
- [11] Sellin, PJ., Breese, M, Galbiati, A., Maghrabi, M and Townsend, PD., *Ion beam induced charge and cathodoluminescence imaging of response uniformity of CVD diamond radiation detectors*, NIM A 487 (2002) 65-70.
- [12] Ramachandran, V., Xiqi, F., Kim, T., Maghrabi, M., Townsend, PD, *Luminescence spectra of doped and undoped lead tungstate crystals*, Radiation Effects & defects in Solids, 157 (2002) 609-613.
- [13] Maghrabi, M., and Arafah D.-E., *Sensitization of the thermoluminescence response of CaF<sub>2</sub> phosphors*, Phys. Stat. Sol. (a), 195 (2003) 459-467.
- [14] Vazquez, GV., Townsend, PD., Maghrabi, M., Bauer, T. and Gonzalez, M, *Characterisation and improvements of the surface of optical materials: relevance to waveguide lasers*, Phys. Stat. Sol. (a), 198 (2003) 465-477.
- [15] Maghrabi, M., Arafah D.-E., Barham, L. and Olaimi, M., *The effect of rare earth doping on the glow peak positions of LiNaSO<sub>4</sub>*, Rad. Meas. 42 (2007) 163-169.
- [16] Maghrabi, M., Al-Jundi, J and Arafah D.-E., *Mixed- and general-order kinetics applied to selected thermoluminescence glow curves*, Radiat. Prot. Dosi. 130 (2008) 291-299.
- [17] Al-Jundi, J., Al-Ahmad, N., Shehadeh, H., Afaneh, F., Maghrabi, M., Gerstmann, U., Höllrieg, V. and Oeh, U., *Investigations on the activity*

- concentrations of  $^{238}\text{U}$ ,  $^{226}\text{Ra}$ ,  $^{228}\text{Ra}$ ,  $^{210}\text{Pb}$  and  $^{40}\text{K}$  in Jordan, Radiat. Prot. Dosi. 131 (2008) 449-454.
- [18] Maghrabi, M., Adrian, AA and Townsend, PD., *Structural and impurity phase transitions of  $\text{LiNaSO}_4\text{:RE}$  probed using cathode-thermoluminescence*, J. Phys.: Condens. Matter 20 (2008) 455207 (6pp).
- [19] Abdul Jawad, S. Abu-Surrah, A. Maghrabi, M. Khattari, Z. and Al-Obeid, M., *Electrical impedance of ethylene-carbon monoxide/propylene-carbon monoxide (EPEC-69) thermoplastic polyketone*, J. Mater. Sci. 46 (2011) 2748–2754.
- [20] Abdul Jawad, S. Abu-Surrah, A. Maghrabi, M and Khattari, Z. *Electric impedance study of elastic alternating propylene-carbon monoxide copolymer(PCO-200)*, Physica B: Condens Matter, 406 (2011) 2565-2569.
- [21] Abdul Jawad, S. Abu-Surrah, A. Maghrabi, M and Khattari, Z, *Dielectric behavior of alternating ethylene, propylene, and carbon monoxide co- and terpolymers via impedance spectroscopy*, J. Appl. Polymer science, 123 (2012) 2020-2026.
- [22] Khattari, Z. Maghrabi, M. McNally, T. and Abdul Jawad, S., *Impedance study of polymethyl methacrylate composites/multi-walled carbon nanotubes (PMMA/MWCNTs)*, Physica B: Condens Matter, 407 (2012) 759-764.
- [23] Al-Sugheir, M.K. Al-Khzon H.A., Al-Maghrabi M. and Alna'washi, G.A. *On the effects of the interaction potential parameters on Bose\_Einstein condensation*, Acta Phys. Pol. A, 122 (2012) 704-708.
- [24] M. Maghrabi, O. Zayed and A. Finch, " *Radio- and thermoluminescence of single doped and codoped lithium-sodium sulfate*", Radiation effects & Defects in Solids. 11-12 (2013) 1030-1037.
- [25] Z. Khattari, T. Al-Abdullah, M. Maghrabi, S. Khasim, A. Roy, I. Fasfous, " *Interaction Study of Lipopeptide Biosurfactant viscosin with DPPC and Cholesterol by Langmuir Monolayer Technique*" Soft Materials 13 (2015) 254-262.
- [26] Z. Khattari, M. Maghrabi, T. Al-Abdullah, " *Temperature effect on thin lipid film elasticity and phase separation: insights from Langmuir monolayer and fluorescence microscopy techniques*", Phase Transitions 88 (2015) 668-681.
- [27] A. Finch, M. Maghrabi, H. Friis, " *Defects in sodalite-group minerals determined from X-ray-induced luminescence*", Phys. Chem. Minerals, 43 (2016) 481–491.
- [28] Z. Khattari, M.I. Sayyed, S.I. Qashou, I. Fasfous, T. Al-Abdullah, M. Maghrabi, " *Interfacial behavior of Myristic acid in mixtures with DMPC and Cholesterol*", Chem. Phys. 490 (2017) 106-114.
- [29] P.D. Townsend, A.A. Finch, M. Maghrabi, V. Ramachandran, G.V. Vázquez, Y. Wang, D.R. White, " *Spectral changes and wavelength dependent thermoluminescence of rare earth ions after X-ray irradiation*", J. Lmin. 192 (2017) 574-581.
- [30] P.D. Townsend, A.A. Finch, M. Maghrabi, V. Ramachandran, G.V. Vázquez, Y. Wang, D.R. White, " *Luminescence detection of nanoparticle inclusions from their phase transitions*", J. Appl. Phys. 121 (2017) 145101.