CURRICULUM VITAE

صبحي سيد ابراهيم	**Name الاسم**
استاذ	**Academic اللقب العلمي Title**
علوم المواد وفيزياء الجوامد **Material Science and solid state physics**	**التخصص الدقيق** **Specialization Field**
1- Polymer composites **2- Polymer nanocomposite** **3- Nanomaterials** **4- Sensor**	**الاهتمامات البحثية** **Current Research Interests**
• **Email 1: isobhy@kfu.edu.sa** • **Email 2: sobhy2000@yahoo.com** • **Mobile – Egypt +20-1145627592** • **Mobile – KSA: +966-501259782** • **KFU office : +966-03-5899521** **Skype account ; sobhy2000**	**Communication** **الاتصال**
• **1980 B.Sc. in Physics (Distinction with Honors), Physics Department, Cairo University, Egypt.** • **1982 Pre-master year in Experimental Physics. Physics Department, Cairo University** • **1985 M. Sc. – Physics – Cairo University " Electrical properties of polycrystalline Triglycin Sulphate ferroectrics"** • **1991 PhD Physics – Cairo university "Preparation and characterization of PVA/TGS ferroelectric polymer composites"**	**Education** **التعليم**
• **1980-1985 Teaching Assistant in Physics Department, Cairo University, Egypt.** • **1991 - 1995 Assistant Teacher in Physics Department, Cairo University, Egypt.** • **1991 -2001 Assistant Professor – Cairo University – Physics Dep. 1/12/2001- 2011 Associate professor – Cairo University – Physics Dep.** • **2011-Now Professor in Solid State – Cairo University – Physics Dep.**	**Professional experience** **الخبرات المهنية**

• 1994 ; Tokyo Science University (Post Doctors) • 1998 ;Algeria (Manager of Egyptian delegation for scientific inventors) • 1984 ;Assistant Teacher in Physics Department, Cairo University Khartoum Branch, Sudan	Academic Activities الانشطة الاكاديمية
• PhD Degree ; 2 Students • Master Degree ; 6 Students	Previous thesis supervision Activities الاشراف البحثي السابق
• Master Degree ; 3 Students	Previous thesis supervision Activities الاشراف البحثي الحالي
العنوان	النشاط
1. 2011 ; Active Financial support from King Abdalaziz City (1,230,00SR)in the field of nanotechnology, for strategic project entitled "Newnano-layer/polymer composite for radiation protection and dosimeteric applications" 2. 2011 ; Active Financial support from King Abdalaziz City (2,000,00SR)in the field of nanotechnology, for strategic project entitled "Preparation and Characterization of Newly Multi-Layered Conducting Polymer Nano-Composites for EMI shielding Applications" 3. 2012 ; active Financial support from KFU dean of research (45000 SR) – Number 140012 – entitled " preparation and characterization of conducting polymer MWCNT nanocomposite for pressure sensor.	المشاريع البحثية القائمة Current Research Projects
1. Ferroelectricity in polycrystalline triglycine sulphate (TGS). M. Amin, K. A. Darwish, S. S. Ibrahim. Ferroelectrics . 1984, vol. 59, pp. 223-240	الأبحاث المنشورة (الحديثة) Publications
2. Pyroelectricity and electrical conductivity in polycrystalline triglycerine sulfate (TGS). M. Amin, K. A. Darwish, S. S.Ibrahim. ferroelectrics . 1987, vol. 76, pp. 33-41	
3. Electrical properties of TGS-PVA composites. M Amin, LS Balloomal, H Osman, S.S Ibrahim. Ferroelectrics, 1990 - Taylor & Francis	
4. The dielectric permittivity of polymer-ferroelectric composites—part 1. SA Khairy, LS Balloomal, HM Osman, S.S Ibrahim. Ferroelectrics, 1992 - Taylor & Francis	

5. **Electrical conductivity of ferroelectric-polymercomposites. LS Balloomal, SA Khairy, HM Osman, S.S Ibrahim. Ferroelectrics, 1992 - Taylor & Francis**	
6. **Optical absorption And thermally stimulated depolarization current studies of Nickel chloride doped poly(vinyl alcohol) irradiated with low level fast neutron doses. F.H.Abd el Kader . G. Attia & S.S.Ibrahim. Journal of Applied Polymer Science , vol 50, 1281-1286(1993)**	
7. **Study of thermal current in CoCl2-dopped poly(vinyl alcohol) films irradiated with γ– rays. F.H.Abd el Kader . G. Attia & S.S.Ibrahim. Polymer degradation and stability, vol 43, 253-260 (1994)**	
8. **Influence of gamma irradiation on the electrical conductivity of FEF/SBR loaded with different concentration of sulpher. A. Elwy, G.M.Nasr and S.S.Ibrahim. Polymer testing, 15,153-161(1996)**	
9. **Comments on the temperature –dependence of the alpha relaxation process in polymer ferroelectric composite. S.A.Khairy & S.S.Ibrahim. J.Phys.D:Appl. Phys. 28, 1919-1924(1995)**	
10. **The effect of particle size on the electrical properties of poly(vinyl alcohol). M.Amin, A. Elwy & S.S.Ibrahim. Egyptian Journal of solids, vol. 16, 2,299-307(1993)**	
11. **An approach for studing natural unipolarity doped and pure single TGS crystal. M.Amin,S.S.Ibrahim,S,S, Abd el Jhani and Z.A.El Salam. Egyptian Journal of solids, vol. 18, 2,253-262(1995)**	
12. **The effect of thickness and preparation techniques on the dielectric relaxation of nylon-11. S.S. Ibrahim. Egyptian Journal of solids, vol. 22, 2,283-292(19 99)**	
13. **Electrical and thermal studies in the commensurate incommensurate phase region of (NH4)2ZnCl4single crystal. M.Amin, A.El-Korashy, S.S.Ibrahim, M.Daboure, S.Arafa. J.Phys. and Chem. Solid,63(2002) 869-874**	
14. **14- Effect of BaTiO3 on the Mechanical Properties of Nitrile Butadiene Rubber (NBR) Vulcanizates. S.S. Ibrahim, M. Abu-Abdeen and A.M. Yassin. Egypt. J. Solids. Volume 29, No. (1), (2006)**	
15. **Structural and transport properties of the La1.85Sr0.15Cu1-xMxO4 superconductivity system. A. Sedky, abdalaziz A Almulhem and S. S. Ibrahim. Smart Mater.Struct. Volume 15 (2006) N99-N106**	
16. **The effect of heat treatment on the mechanical properties of sn-10wt%sb-1.5wt%cu alloy. A. M. Yassin, M. abu Abdeen and S.S.Ibrahim. Al-Azhar Bull. Sci. Volume 18, No. 1 (June)**	

2007, Pages 93-100	
17. Effect of Dissolution of β-phase on the electrical resistivity of Sn-5wt%Sb-1wt%Cu alloy. A. M. Yassin, S.S.Ibrahim, S. S. Arafat. Al-Azhar Bulletin of Science- Basic Science Sector. Volume 19, No. 1, Pages. 17-26, 2008.	
18. Optoelectrical Properties of Ferroelectric PC/Ceramic Composites. S.S. Ibrahim, A.S. Ayesh and Adil Al Shoaibi. Journal of thermoplastic material composite. Volume 22, 2009, Pages 335-348	
19. Dielectric Relaxation And Optical Properties OfFerroelectric /Polymer Composite. S. S. Ibrahim. JP Journal of Solids and Structures. Volume 3, Issue 2, 2009, Pages 97-110	
20. Dielectric And Optical Properties Of PVC Doped With TiO2 .S. S. Ibrahim. International Journal of Materials Engineering and Technology Volume 2, Issue 1, 2009, Pages 1-15	
21. Photoacoustic measurement of thermal propertiesof polystyrene metal oxide composites. T.A. El-Brolossy and S. S. Ibrahim. Thermochimica Acta, 2010;509(1-2):46-49	
22. Thermophysical and electrical characterization of PVC-SWNT nanocomposites. T.A. El-Brolossy , S. S. Ibrahimand Abdullah Alkhateeb. Composites Part A (accepted 2010)	
23. Structural and Dielectric Properties for BiFeO3 Doped with Cr ions S. S. Arafat and S. S. Ibrahim. JP Journal of Solids and Structures (accepted December 2010)	
24.	
25. Physical characterizations of three phase polycarbonate nanocomposites . S. S. Ibrahim, Abdullah A Al Jaafari and Ayman S Ayesh. Journal of Plastic Film and Sheeting October 2011 vol. 27 no. 4 275-291	
26.	
27. Low Percolation Behaviour of Polystyrene CarbonNanoparticles (PS/CNPs) Composite. S.S. Ibrahim J. Mater. Environ. Sci. 2 (2) (2011) 118-127	
28.	
29. Investigation of the Influence of SWCNT on Electrical, Optical and Thermal Properties of Polyvinyl Chloride. S.S.Ibrahim. International Journal of Materials Physics. ISSN 0974-309X Volume 2, Number 2 (2011), pp. 95-108	

30. Thermophysical and electrical characterization of PVC–SWNT nanocomposites. A.A. Aljaafari, S.S. Ibrahim, T.A. El-Brolossy. Composites A: Applied Science and Manufacturing Volume 42, Issue 4, April 2011, Pages 394-399	
31. Physical characterizations of three phase polycarbonate nanocomposites. Ibrahim S, Al Jaafari AA and Ayesh AS. Journal of Plastic Film and Sheeting. 2011; 27: 275-91.	
32. Preparation and characterization of P3OT-PVC polymer blends , S.S. Ibrahim and Ayman S. Ayesh. accepted in 2012 plastic Film and Sheetings	
33. Electrical and optical properties of functionallized-MWCTS/P3OT/PS composites, S.S. Ibrahim and Ayman S. Ayesh . accepted in 2013 Thermoplastic composite	
34. Electrical, optical, and rheological properties of ozone-treated multiwalled carbon nanotubes–polystyrene nanocomposites. Ayesh AS, Ibrahim SS and Aljaafari AA . Journal of Reinforced Plastics and Composites. Published online before print December 11, 2012, doi : 10.1177/0731684412470016	
35. M. Low percolation threshold of functionalized single-walled carbon nanotubes—polycarbonate nanocomposites. Ayesh AS, Ibrahim S and Abu-Abdeen. Journal of Reinforced Plastics and Composites. 2012; 31: 1113-23.	
36. Preparation and Physical Characterization of Conjugated Polymer-Polycarbonate Polymer Blends, M. Abu Abdeen, Ayman S. Ayesh, Sobhy I., and Rana H. Al Khaldi, Accepted in J. Composite Materials, May 2013	
37. Novel Disspersion of MWCNTs in Polystyrene Polymer Induced by the Addition of 3- Hydroxy-2-napthoic Acid, Rami A. Abdel-Rahem, Ayman S. Ayesh, S. S. Ibrahim, Abdullah A. Al-Jaafari,Nadeem S. Sheikh, and Essam Yasin, . accepted in Journal of Dispersion Science and Technology, 2013.	
38. Determining the thermophysical properties of Al-doped ZnO nanoparticles by the photoacoustic technique T. A. El-Brolossy, O. Saber , S. S. Ibrahim and Eman A. Alkhudhir. POLYMER COMPOSITES—2014	

39. **Electrical and mechanical properties of B-hydroxynaphthoic acid–multiwalled carbon nanotubes–polystyrene nanocomposites Ayman S Ayesh, SS Ibrahim, Abdullah A Al-Jaafari , Rami A Abdel-Rahem , Nadeem S Sheikh and H Mahfoz Kotb. Journal of Thermoplastic Composite (2014)**	
40. **Thermal conductivity and thermal stability of multiwall carbon nanotube / poly(3-octylthiophene) polymer nanocomposite. T. A. El-Brolossy and S. S. Ibrahim. Accepted (2014)**	
Funded Projects (as PI only)	
,New nanolayer/polymer composite for radiation protection and dosimeteric applications	**Financial support from King Abdalaziz City (1,230,00SR)in the field of nanotechnology**

Project Abstract:

Minimizing the hazards of ionizing radiation comes from protection of individuals against radiation, which necessitates the completion of two tasks; development of save radiation limits, and construction of instruments that measure the intensity of radiations. The development of radiation protection technology and new types of dosimeters are the most objectives for several researchers. To achieve this targets and needs our group suggests such project which concerned with development of a polymer/nano-system composite to have the capability for use in radiation protection beside radiation dosimetry.

The project includes the preparation of different groups of polymer nanocomposite. These composites based on the nano-layer (NL)/polymer composites with different concentrations and different types of both nano-layers and polymers. Samples in the form of sheets will be prepared with different techniques using the spin coat technique and cast technique. In addition, the nature of the surfaces as a physical parameter will be investigated with respect to smoothness and roughness.

Another set contains of multilayer polymer nano-composite samples comprising sequential layers of polymer/NL will be prepared. Such multilayer composites aim to increase the radiation scattering through the NL in addition to the radiation sink through the interfacial layers.

To obtain radiation dosimeters, the prepared samples will be exposed to different doses of ionizing radiation such as low energy x-ray, gamma ray from more than one source (Cobalt and Cesium) in addition to the UV radiation. To estimate the radiation effects, set of physical properties will be investigated for the irradiated samples, as electrical properties (electrical conductivity and dielectric constant), thermal properties (DSC and TG) besides the optical characterization through FTIR, UV-and visible. Also, the effect of NL's with different configuration and different interstitial atoms.

SEM and TEM will be used to observe the orientation and distribution of CL's within the composites. Radiation protection characteristics will be measured utilizing scintillation detector or an Hyper Pure Germanium detector to obtain some important parameters such as the half value thickness and others that indicate the radiation absorption. The study will compare different composites and their concentrations to obtain the suitable set that can be used as radiation dosimeters and the best for radiation protection purposes and their industrial and humanness applications.

The use of multilayered samples of polymer composite with different nature of the interfacial surface may cause inhibition of the electromagnetic radiation beside the expectation of increasing the

absorption coefficient.
In addition, we expect more multiple scattering of incident radiations with nanoelements; therefore minimize the intensity of the transmitted electromagnetic radiation resulting in more shielding. The new prepared shielding material will be, cheap in price, easily used due to its flexibility (i-e gloves and radiation protection clothes).

Preparation and Characterization of Newly Multi-Layered Conducting Polymer Nano-Composites for EMI shielding Applications	**Financial support from King Abdalaziz City (2,000,00SR)in the field of nanotechnology**

Project Abstract:

This project aims to develop high-value, environmentally friendly and low-cost conducting polymer carbon nano-tube composites (CNT) for protection against the effects of electromagnetic interference (EMI). The project partners looked at hybrid systems composted of conducting and non-conducting polymers as a host material with conducting multiwalled carbon nanotubes (MWCNT) as a filler, to form double layer polymer /CNT composites. Each layer has well dispersed, percolated and randomly distributed CNT. As a part of preparation, the orientation of CNT will be also considered and performed through an electrical field exposure during film preparation.

The suggested polymer hosts in this project are poly(methyl methaacrylate) (PMMA), polycarbonate (PC), and polyaniline (PANI). The matrix in the upper layer with respect to the lower layer will be PMMA-PANI, PC-PANI , PANI-PANI, PMMA-PMMA and PC-PC with different CNT loadings starting from the percolation threshold up to 5 wt%. The dispersion of CNT in polymer matrix and the interfacial strength will be investigated and improved through two proposed methods with respect to the pre-treatment of CNT; (a) Treatment of multi walled carbon nanotubes (MWNTs) with UV-Ozone (UVO) under ambient conditions for suitable time to obtain CNT with a functional group without any morphological damages ,(b) MWCNT will be mixed with a solution consists of Pyrene photo-sensitizer, which will be adsorbed at MWCNT surface. The Pyrene/MWCNT (PMWCNT) will then expose to UVO for different time intervals in order to establish a comparison study between unexposed and exposed PMWCNT.

A comparative studies between the two types of pre-treatment will be carried out to investigate effect of these pre-treatment on the degree of dispersion and orientation through different polymeric solutions.

The characterizations of the developed materials will be performed through a set of physical properties, such as, electrical properties (electrical conductivity and dielectric constant), thermal properties (DSC and TG), optical properties (FTIR, UV-vis. absorption spectroscopy, optical energy gap, fluorescence spectroscopy). The orientation and distribution of MWCNT's within the composites will be examined via SEM, AFM and TEM. Electromagnetic shielding efficiency (SE) will be measured in the frequency range from few MHz up to 1.5 GHz.. The study will compare different composites and their concentrations to obtain the suitable set that can be used as electromagnetic shielding layer and also

electromagnetic exposure dosimeters purposes and their industrial and humanness applications.

Designation and Characterization of A Novel Double Coated Layered Conducting Polymer Nano Composites For The Shielding Applications Against The Electromagnetic Interference (EMI)	**Financial support from King Abdul-Aziz City (370,00SR)in the field of nanotechnology**

This project aims to develop high-value, environmentally friendly and low-cost conducting composites for protection against the effects of electromagnetic interference (EMI). The project partners looked at commercial polymers such as poly(methylmethaacrylate) (PMMA), polycarbonate) (PC) , conjugated polymers (such as P3OT, P3HT, PPV,...etc,, and to a conducting nano fillers such as carbon nanoparticles (CNPs) and multi walled carbon nanotubes (MWCNTs), as well as hybrid systems to form double layered polymer/CNT composites coated with conjugated polymer/CNP composites. Each layer has well dispersed and percolated nano fillers. CVD technique will be used to synthesis MWCNTs .Besides, the nano filler dispersion and the interfacial strength between nano filler-polymer will be improved through the direct exposure of nano fillers (MWCNT and CNP) to UVO for suitable time or treated with acid to obtain a functional group on the surface of these nano fillers without any morphological damages The developed material characterizations will be performed through the main measured parameters such as 1shielding efficiency (SE) in the frequency range from few MHz up to 1.5 GHz, DC and AC conductivity, mechanical properties, morphology, UV-vis. absorption spectroscopy, and thermal stability. However, it is highly expected that the performance of EMI shielding will be highly improved through the development of materials and the using of such a novel martial design.

Preparation and characterization of conducting polymer MWCNT nanocomposite for pressure sensor.	**Financial support from KFU dean of research (45000 SR) – Number 140012**

Project Abstract:

We will fabricate a pressure sensitive composite using multi-walled carbon nanotubes (MWCNTs) as a conductive filler and polymer blend. Polyvinyl chloride (PVC) (as insulating polymer) and poly(3-octylthiophene) (P3OT) (as a conducting polymer matrix) will represent the host polymer blend. To achieve a homogeneous dispersion of MWCNTs in polymer blend, the MWCNTs will modified by UV-Ozone technique. The sample will prepared above the percolation threshold. The electrical conductivity and piezoresistive sensitivity of the composite will be investigated. We will study the dependence of the pressure sensitivity on the MWCNT and P3OT weight ratio The thermal stability for the prepared samples will also be studied.