

جامعة
الملك سعود
King Saud University



**King Saud University
Science College
Department of Physics and Astronomy**

CURRICULUM VITAE

Dr/ Samah El-Bashir

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1-PERSONAL

- ◆ **Full Name:** Samah Mohammed El-Bashir Abd El-Wahab.
- ◆ **Date of birth:** June 6,1975.
- ◆ **Place of birth:** Egypt
- ◆ **Marital Status:** Married.
- ◆ **Gender:** Female
- ◆ **Nationality:** Egyptian.
- ◆ **Present Rank:** Associate Professor of experimental solid state physics
- ◆ **E-mail:** elbashireg@yahoo.com sbashir@ksu.edu.sa
- ◆ **Telephone:** +966 565 850 487 (SA)
+2133255987 (Egypt)
- ◆ **Languages:** English (*very good*)
Arabic (*Mother Tongue*)
- ◆ **Researcher ID (ISI web of knowledge):** E-7373-2014
- ◆ **Researcher ID (Google Scholar):**
<http://scholar.google.com/citations?user=PLOk-vUAAAAJ&hl=en&oi=sra>
- ◆ **Web Page:** <http://fac.ksu.edu.sa/sbashir/home>

2- EDUCATIONAL

- [1] Ph.D., Experimental Solid State physics; "Preparation of Fluorescent (PMMA/nano SiO₂) Hybrids to Study the Photophysical Processes and Improve the Solar Energy Conversion", Benha University, Egypt, 2005.
- [2] M.Sc., Experimental Solid State physics; "Preparation and characterization of a fluorescent solar collector," Benha University, Egypt, 2001.
- [3] B.Sc. Physics, Benha University, Egypt, 1996.

3- ACADEMIC NOMINATION & APPOINTMENTS

- [1] Associate Professor of experimental solid state physics, Science College, KSU, Riyadh, KSA, April 2014.
- [2] Assistant Prof. of experimental solid-state physics, Science College, KSU, Riyadh, KSA, 2007.
- [3] Coordinator at physics department, KSU, Riyadh, KSA, 2006-2007.
- [4] Assistant prof. of Material Science, Faculty of Science, Benha University, A.R.E. (2005-2006).
- [5] Lecturer of solid state physics Faculty of Science, Benha University, A.R.E. (2001- 2005).
- [6] Demonstrator at Physics Department, Faculty of Science, Benha University, A.R.E. (1997-2001).

4- AWARDS in KSA

- [1] **Almarai Prize for Scientific Innovation in physics (2009) for the research paper titled:** "Preparation of Crystalline Gold Nanoparticles and their Prospects in Enhancement of Solar Energy Conversion Efficiency".
- [2] **Almarai Prize for Scientific Innovation in Solar Energy (2013) for the research paper titled:** "Double-layered Plasmonic Thin-Film Luminescent Solar Concentrators based on Polycarbonate supports".

5- INNOVATIONS

- [1] Mohammed A. Binhussain, **Samah M. El-Bashir**, "Synthetic Composition of Marble and Method of Production (1)", USA Patent No. US8, 648,129 B2, Feb.11, 2014.
- [2] Mohammed A. Binhussain, **Samah M. El-Bashir**, "Synthetic Composition of Marble and Method of Production(2)", USA Patent No. US8, 669,303 B2, Mar.11, 2014.

6- SCIENTIFIC ACTIVITIES

My research program is interested in studying the impact of nanostructured materials on the physical properties of polymers, semiconductors and their applications in solar energy conversion and building materials. I participated in several research projects in the field of specialty as shown below:

A. Research projects with faculty members at the level of the department and the university

- [1] Principle investigator in the project "Innovation of Smart Windows Based on Solar Energy Conversion: Towards Efficient Energy Buildings" funded by King Abdul-Aziz City of Science and Technology- 2015/2017
- [2] Co. Investigator in the project "Preparation of Luminescent Polymer Nanocomposites to Enhance Solar Energy Electrical Conversion Efficiency and Greenhouse lighting" - Princess Noura University- 2013/2015.
- [3] Co. Investigator in the project "Preparation of Highly Efficient Luminescent Nanocomposites for Optical Sensor Applications and Enhancing the Efficiency of Solar Cells" - Princess Nora University 2014/2016.

- [4] Co. Investigator in the research group of "analytical and physical chemistry" supervised by Prof. Dr. Nawal Al-Arfaj Chemistry Department, project No. RGP-VPP-030 funded by Deanship of Scientific Research at King Saud University 2011.
- [5] Co. Investigator in a research project titled "Using of Local Petrochemical Segments to Produce Integrated Marble Tiles", funded by King Abdul-Aziz City of Science and Technology 2010.
- [6] Co. Investigator in a research project titled "Preparation of Crystalline Gold Nanoparticles and their Prospects in Enhancement of Solar Energy Conversion Efficiency", funded by Deanship of Scientific Research, 2009.
- [7] Co. Investigator in a research project titled "Preparation of synthetic marble using marble and acrylic wastes" funded by SABIC, 2008.

B. Supervision of the Theses

Principle Supervisor:

- [1] M.Sc. Thesis by Ohood Al-Harbi titled: "Preparation and Characterization of Fluorescent Nanohybrids to Improve Solar Energy Conversion Efficiency," **approved in 2012.**
- [2] M.Sc. Thesis by Norah Al-Wadei titled: "Study of the Electrical and Optical Properties of nanocomposite thick films Prepared from Fullerene Doped Polymers," **approved in 2012.**
- [3] M.Sc. Thesis by Fatimah Barakat titled: "Effect of surface Plasmons in Enhancing the Efficiency of Luminescent Solar Concentrators," **approved in 2012.**
- [4] M.Sc. Thesis by Nouf Al-Themairi titled: "Physical Properties of Saudi Stone Waste /PMMA Nanocomposites," **approved in 2013.**
- [5] M.Sc. Thesis by Nora Al-Dossari titled: "Preparation and Optical Characterization of Luminescent Down-shifting Polymer Nanocomposite Thin-films" **approved in 2016.**
- [6] M.Sc. Thesis by Samia Al-Qarni titled: "Investigation of the Optical and Electrical Properties of Organic Dye for Solar Energy Conversion Applications " **approved in 2016.**
- [7] M.Sc. Thesis by Areeg Al-Gaghwani titled: "Investigation of the Photophysical Properties of Polymer Nanocomposite Films Doped with Laser Dyes for Solar Energy Applications" **approved in 2016.**

- [8] M.Sc. Thesis by Turkeiah AlShamri titled: "Preparation of Polymer/graphene Nanocomposites for Solar Energy Conversion."

Co. Supervisor:

- [9] M.Sc. Thesis by Rasha Abu-Mousa titled: "Photophysical Properties of MDMO-PPV Conjugated Polymer," **approved in 2010.**
- [10] M.Sc. Thesis by Fayzah Al-Hamed titled: "Effect of GdO₃ additives on the microstructure and electrical properties of Pr₂O₃, CO₂O₃, Cr₂O₃ doped ZnO Varistor", **approved in 2013.**
- [11] M.Sc. Thesis by Asmaa Al-Shareim titled: "Sintering time and sintering temperature influence on the electrical and microstructure properties of SnO₂ varistors", **approved in 2014.**
- [12] M.Sc. Thesis by Wadha al-Eneizi titled: " "Optical properties and durability of Poly (9, 9'-di-n-octylfluorenyl-2.7-diyl)/ ZnO nanohybrid Films: Towards Organic Photovoltaic Applications", **approved in 2015.**
- [13] M.Sc. Thesis by Nora Al-Atwi titled: "Electrical and Optical Properties of Silica Monolith Prepared by Sol-gel Technique and Doped with Cadmium Sulfide Quantum Dots ", **approved in 2015.**

C. Scientific Advisory

- [1] Scientific consultant to the United Saudi Italian factory for acrylic manufacturing – Jeddah - KSA.
- [2] Scientific Advisor for the project titled "Using of Local Petrochemical Segments to Produce Integrated Marble Tiles," funded by King Abdulaziz City for Science and Technology. (2011-2012).
- [3] Organization of international conferences and workshops in the field of solar energy conversion and nanotechnology - photoenergy center - Ain Shams University - 2001 to 2005.
- [4] Practical involvement in the International Symposium on PV Energy organized by the United Nations Industrial Development Organization (UNIDO) in cooperation with photoenergy center - Ain Shams University - 2002.

7- TEACHING PHILOSOPHY & EXPERIENCE

"I believe that the successful teaching is based on providing suitable environment, multiple methods of teaching, as well as the other learning tools available for my students in KSU. This will be achieved by focusing on the individual needs, and involving the students in the process of learning. It is important to motivate our students by the educational activities for life applications in the area of specialization to intensify their knowledge and deepen their experiences".

A. Courses taught for the undergraduate students at KSU

- [1] PHYS 110 General Physics I
- [2] PHYS 111 General Physics II
- [3] PHYS 102 General Physics II for Chemistry Students
- [4] RAD 101 General Physics for College of Nursing
- [5] PHYS 104 General Physics for the Faculty of Computing
- [6] PHYS 145 General Physics for Faculties of Health Sciences
- [7] PHYS 234 Vibrations and Waves
- [8] PHYS 241 Heat and Thermodynamics
- [9] PHYS 371 Solid State Physics I
- [10] PHYS 476 Introduction to Nanoscience
- [11] PHYS 477 Renewable Energy
- [12] PHYS 490 Research Skills
- [13] PHYS 499 Graduation Project

B. Laboratories for undergraduate students at KSU

- [14] PHYS 391 Laboratory of Thermodynamics
- [15] PHYS 495 Laboratory of Solid State Physics

C. Courses taught for graduate students at KSU

- [16] PHYS 570 Solid State Physics (master program)
- [17] PHYS 572 Semiconductor Physics (master program)
- [18] PHYS 575 Solar Energy Conversion (master program)

8- ACADEMIC COMMITTEES

- [1] Member of the committee of Graduate Affairs and Employment, Department of Physics and Astronomy –Girls Section- KSU.
- [2] Member of the Committee of the Status test questions for the admission of the M.Sc. and Ph.D. students- Department of Physics and Astronomy –Girls Section-KSU.

9- RESEARCH EXPERIENCES

A. Membership in research groups

- [1] Member of the Materials Sciences Research Group- Department of Physics and Astronomy, Science College, KSU.
- [2] Member of Renewable Energy Research Group- Department of Physics and Astronomy, Science College, KSU.
- [3] Member of Laser physics Research Group- Department of Physics and Astronomy Science College, KSU.

B. Experimental Experience

- [1] Preparation of polymer films (cross-linked and conjugated).
- [2] Designing and characterization of luminescent solar concentrators.
- [3] Optical filters for smart windows
- [4] Organic semiconductors.
- [5] Quantum Dots.
- [6] Preparation of sol-gel glass.
- [7] Preparation of Fluorescent nanohybrids.
- [8] Dye sensitized solar cells (DSSC).
- [9] Preparation and characterization of polymer nanocomposites for industrial applications such as (Artificial Marble & Plywood).
- [10] Material characterization using TEM.
- [11] Material characterization using SEM.
- [12] X-ray diffraction (XRD) spectroscopy.

- [13] Fourier transform infrared (FT-IR) spectroscopy.
- [14] UV- Vis Absorption Spectroscopy and band gap calculation.
- [15] Steady state Fluorescence Spectroscopy.
- [16] Solar cell calibration.
- [17] Photo-stability of materials (indoor and outdoor).
- [18] Reflection Spectroscopy and calculation of the optical constants.
- [19] Electrical properties measurements.
- [20] Dielectric properties measurements.
- [21] Mechanical properties.
- [22] Thermal properties (TG, DTA, DSC).

C. Reviewing in international scientific journal (ISI)

- [1] Solar Energy (Elsevier)
- [2] Applied Energy (Elsevier)
- [3] Spectrochimica Acta (Elsevier)
- [4] Journal of Applied Polymer Science (Wiley)
- [5] Polymer Bulletin (Springer)
- [6] Energy Sources, Part A (Taylor & Francis)
- [7] Fibers and Polymers (Springer)
- [8] Journal of Inorganic Materials (Science Press)

10- CONFERENCES & WORKSHOPS

- [1] Presenting keynote lectures at the Institute of King Abdullah for Nanotechnology (KAIN) 2012-2016.
- [2] Workshop "graduate international expertise" - King Saud University, November 17, 2014.
- [3] Fourth National Symposium on Informatics - King Saud University -23 April 2013.
- [4] Workshop "Towards a distinct outputs of the National Plan for Science, Technology and Innovation" - King Saud University - March 2, 2013.
- [5] The second annual teaching university "Assessment of learning outcomes" - King Saud University - 9 to 10 February 2013.

- [6] The workshop entitled "Microsoft Day at King Saud University" - December 11, 2012.
- [7] Workshop entitled "Structuring colleges" - King Saud University - November 21, 2012.
- [8] The workshop entitled "academic programs: a review of the pursuit of excellence" - King Saud University - November 17, 2012.
- [9] Saudi Conference for the second Nanotechnology - the city of King Abdul Aziz City for Science and Technology - November 11, 2012.
- [10] International Workshop on Advanced Materials for sensors of electronic and renewable energy - Najran University - 14 to 16 May 2012.
- [11] Workshop entitled "First Day of Excellence" - King Saud University - April 3, 2012.
- [12] Workshop entitled "Career Day Fourth Faculty of Science - employment and sustainable partnership" - King Saud University - March 13, 2012.
- [13] 8th International Conference on High Capacity Optical Networks and Emerging Technologies (HONET), KSU, Riyadh, 18/12/2011.
- [14] The Saudi International Advanced Materials Technologies Conference, KACST, Riyadh, 17/10/2011.
- [15] Workshop on "The International Day for Intellectual Property," KSU, Riyadh, 26/4/2011.
- [16] Workshop on "Opportunities of Success in obtaining a Patent," KSU, Riyadh, 13/12/2010.
- [17] Workshop on The Week of Preparing for the university Teaching", KSU, Riyadh, 19-21/ 10/ 2010.
- [18] "International Conference on Powering a Greener Future: Nanomaterials and Solar Energy Conversion Solar'10", Cairo, Egypt, 14/2/2010.
- [19] "Investment opportunities in Riyadh Technology Valley," KSU,Riyadh, 16/5/2010.
- [20] King Saud University smoke-free environment", KSU, Riyadh, 14/3/2010.
- [21] " A workshop for Academic Accreditation, Department of Physics and Astronomy," KSU, Riyadh, 10/1/2010.

- [22] "The mechanism of approval of programs and study plans: International and local experiences," KSU, Riyadh, 4/10/2010.
- [23] "The role of the Research Centre for Leadership and Excellence," KSU, Riyadh, 17/11/2009.
- [24] "First International Conference on Entrepreneurship," KSU, Riyadh, 25/10/2009.
- [25] "The launch of Women's Health Research Chair," KSU, Riyadh, 23/12/2009.
- [26] "Education reform in the Arab countries of Saudi Arabia - a model," KSU, Riyadh, 11/10/2009.
- [27] "Preparatory meeting for the first scientific conference for students of higher education," KSU, Riyadh, 10/12/2009.
- [28] "Polymeric composite materials in building & construction," KSU, Riyadh, 13/12/2009.
- [29] International Conference on molecular/nano photochemistry, photocatalysis and solar energy conversion 24-28 February 2008.
- [30] INTERNATIONAL WORKSHOP on "Nano Research at Universities: The Road Toward Fulfilling the Vision of the Custodian of the Two Holy Mosques." King Saud University, Riyadh, KSA Oct. 28-29, 2007.
- [31] The 9th International Conference on Solar Energy and Applied Photochemistry SOLAR '06; 23-27 January, Cairo, Egypt, 2006.
- [32] 8th International Conference Solar energy and Applied Photochemistry [SOLAR'05] 20-25 February, Luxor, Egypt, 2005.
- [33] 7th International Conference Solar energy and Applied Photochemistry [SOLAR'05], Luxor, Egypt, 2003.
- [34] INTERNATIONAL WORKSHOP on "PV Applications" 27-29 May, Cairo, Egypt 2002.
- [35] International Workshop on "Solar Cells and Water Pumping Systems" Organized by Photoenergy Center, Faculty of Science, Ain Shams University, Sponsored by ICS-UNIDO Hosted and co-organized by Photoenergy Center, 20-22 December Cairo, Egypt, 2001.
- [36] 6th International Conference on Solar Energy and Applied Photochemistry [SOLAR '01] Cairo, Egypt, April 3 – 8, 2001.

- [37] International Expert Group Meeting on “Networking of PV systems and applications” Cairo, Sponsored by: ICS-UNIDO 26-28 April 2000.
- [38] 5th International Conference on Solar Energy and Applied Photochemistry [SOLAR ‘99] Cairo, Egypt, March 30 - April 4, 1999.

11- PUBLICATIONS

- [1] **S.M.El-Bashir**, “Enhanced fluorescence polarization of fluorescent polycarbonate/zirconia nanocomposites for second-generation luminescent solar concentrators,” *Renewable Energy*, 115 (2018) 269.
- [2] **S.M. El-Bashir**, “Physical Properties Nd³⁺ Doped (SiO₂-TiO₂) Monolithic Glass for Photoresistor Applications”, *Materials Research Express*, 4 (2017) 115203.
- [3] **S.M. El-Bashir**, N.M. Alwadai, N. AlZayed, “AC/DC electrical conduction and dielectric properties of PMMA/PVAc/C₆₀ down-shifting nanocomposite films”, *J. of Molecular Structure*, 1154 (2018) 239.
- [4] **S.M. El-Bashir**, N.A. Al-Thumairi, N. AlZayed, “Durability and Mechanical Performance of PMMA/Stone Sludge Nanocomposites for Acrylic Solid Surface Applications,” *Polymers*, 9 (2017) 604.
- [5] **S.M. El-Bashir**, “Effect of solvent polarity on the homogeneity and photophysical properties of MDMO-PPV films: Towards efficient plastic solar cells,” *J. of King Saud University - Science*, xxx (2017) xxx.
- [6] **S.M. El-Bashir**, I.S. Yahia, M.A. Binhussain, M.S. AlSalhi, “Design of Rose Bengal/FTO optical thin film system as a novel nonlinear media for infrared blocking windows,” *Results in Physics*, 7(2017)1852.
- [7] **S.M. El-Bashir**, I.S. Yahia, M.A. Binhussain, M.S. AlSalhi, “Designing of PVA/Rose Bengal Long-Pass Optical Window Applications,” *Results in Physics*, 7(2017)1238.
- [8] **S.M. El-Bashir**, W. K. Alenazi, M.S. AlSalhi, “Optical properties and durability of Poly (9, 9’-di-n-octylfluorenyl-2,7-diyl)/ ZnO nanohybrid Films: Towards Organic Photovoltaic Applications”, *Mater. Res. Express*, 4(2017)025503.
- [9] **S.M. El-Bashir**, I.S. Yahia, F. Al-Harbi, H. Elburaih, F. Al-Faifi, N.A. Aldosari, “Enhancing Photostability and Efficiency of Polymeric Luminescent Solar Concentrators by PMMA/MgO Nanohybrid Coatings,” *International journal of green energy*, 14(2017)270.
- [10] **S.M.El-Bashir**, F.F.Al-Harbi, H. Elburaih, F. Al-Faifi, I.S. Yahia, “Red photoluminescent PMMA nanohybrid films for modifying the spectral distribution of solar radiation inside greenhouses.” *Renewable Energy* 85 (2016)928.

- [11] I.S. Yahia, S. AlFaify, M.M. Abutalib, S. Chusnutdinow, T. Wojtowicz, G. Karczewski, F. Yakuphanoglu, A. Al-Bassam, A.M. El-Naggar, **S.M. El-Bashir**, "n-(CdMgTe/CdTe)/(p-(CdTe/ZnCdTe/ZnTe)/p-GaAs heterostructure diode for photosensor applications", Applied Physics A, 122(5) (2016) 1.
- [12] I.S. Yahia, S. AlFaify, A. Al-ghamdi, H. Hafez, **S.M. El-Bashir**, Al-Bassam, A., ... & Yakuphanoglu, F. "Synthesis and characterization of DSSC by using Pt nano-counter electrode: photosensor applications." Applied Physics A, 122(6) (2016)1.
- [13] **S.M. El-Bashir**, O.A. Al-Harbi, M.S. AlSalhi, " Optimal Design for Extending the Lifetime of Thin Film Luminescent Solar Concentrators ," Optik, 125(2014)5268.
- [14] **S.M. El-Bashir**, F.M. Barakat, M.S. AlSalhi, " Double layered Plasmonic Thin-Film Luminescent Solar Concentrators based on Polycarbonate supports", Renewable Energy, 63(2014)642.
- [15] **S.M. El-Bashir**, M. A. Binhussain, N.A. Al-Thumairi, N. AlZayed, " Preparation and Characterization of PMMA/ Stone Waste Nanocomposites for Marmoreal Artificial Stone Industry ," J. of reinforced plastics and composites, 33(2014)47.
- [16] **S.M. El-Bashir**, F.M. Barakat, M.S. AlSalhi, " Metal Enhanced Fluorescence of Mixed Coumarin Dyes by Silver and Gold Nanoparticles: Towards Plasmonic Thin-Film Luminescent Solar Concentrator," J. Luminescence, 143(2013) 43.
- [17] **S.M. El-Bashir**, "Thermal and Mechanical Properties of Plywood Sheets based on Polystyrene/Silica Nanocomposites and Palm Tree Fibers," Polymer Bulletin, 70(2013)2035.
- [18] **S.M. El-Bashir**, O.A. Al-Harbi, M.S. AlSalhi, "Thin-Film LSCs based on Nanohybrid Coatings: Device Optimization and Outdoor Performance," International journal of photoenergy, Vol. 2013, Article ID 235875, 10 pages.
- [19] **S.M. El-Bashir**, " Photophysical properties of fluorescent PMMA/SiO₂ Nanohybrids for solar energy applications, "Luminescence, 132(2012)786.
- [20] R.M.Ahmed , **S.M.El-Bashir**, "Structure and Physical Properties of Polymer Composite Films Doped with Fullerene Nanoparticles," International Journal of Photoenergy, (2011), Vol.2011, Article ID 801409.
- [21] **S.M. El-Bashir**, A. Hindi, O. Al-Dossary, "Preparation of Crystalline Gold Nanoparticles and their Prospects in Enhancement of Solar Energy Conversion Efficiency," Journal of material sciences and engineering, 4(2010)22.
- [22] **S.M.El-Bashir** , A.Hindi, "A Decorative Construction Material by making Use of Marble Waste Granules and PMMA/SiO₂ Nanocomposites", polymer plastics engineering and technology, 49(2010)1.

- [23] **S.M. El-Bashir**, "Photophysical Properties of PMMA Nanohybrids and their Applications: Luminescent Solar Concentrators & Smart Greenhouses," LAMPERT Academic Publishing, book project ISBN: 978-3-8473-0685-6, July21, (2012).
- [24] M.G. El-Shaarawy, S.M. **El-Bashir**, M. Hammam, M.K.El-Mansy, "Bent fluorescent solar concentrators (BFSCs): Spectroscopy, stability and outdoor performance," current applied Physics, 7(2007) 643.
- [25] M. Hammam, M.K. El-Mansy, **S.M. El-Bashir**, M.G. El-Shaarawy, "Performance evaluation of thin-film solar concentrators for greenhouse applications," Desalination, 209(2007)244.
- [26] M.G. El-Shaarawy, A.F. Mansour, **S.M. El-Bashir**, M.K. El-Mansy, M. Hammam, "Electrical conduction and dielectric properties of poly (methyl methacrylate)/perylene solar concentrators," Journal Applied Polymer Science, 88(2003)793.
- [27] A.F. Mansour, M.G. El-Shaarawy, **S.M.El-Bashir**, M.K. El-Mansy, "Optical study of perylene dye doped poly(methyl methacrylate) as fluorescent solar collector," Polymer International, 51(2002)393.
- [28] A.F. Mansour, M.G. El-Shaarawy, **S.M. El-Bashir**, M.K. El-Mansy, "A qualitative study and field performance for a fluorescent solar collector," Polymer Testing, 21(2002)277.