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Engr. Dr. Hanif Ullah

EDUCATION:

June 15—May 16	**Research Fellow** at Warsaw University of Technology Poland
March 12—March 15	***Ph.D. (PROGRAMME IN DESIGN, MANUFACTURING AND MANAGEMENT OF INDUSTRIAL PROJECTS)*** ***Universitat Politechnica de Valencia (UPV), Valencia Spain.*** Field of Specialization: Renewable Energies, Thin film Solar Cells. Thesis Title: "SIMULATION STUDIES OF THIN FILM PHOTOVOLTAIC DEVICES" Advisor: Prof. Dr. Bernabe Mari Soucase Online: *https://riunet.upv.es/handle/10251/48800*
Sep 06—August 11	***MS (Electronic Engineering)*** **International Islamic University (IIUI), Islamabad Pakistan.** Field of Specialization: Electronic and telecommunication subjects, 24 credit hours course work and 06 credit hours thesis work. Thesis Title: "Routing and Wavelength Assignment in Optical Burst Switched Network"
Oct 2000— August 05	***BSc Electrical Engineering*** **University of Engineering and Technology (UET) Peshawar (Pakistan)** Electrical Engineering courses major in communication Pakistan Engineering Council (**PEC**) membership no.: **ELECT/21369.**

Research Interest

Photovoltaic Solar cells, Next generation solar Cells, Thin-film Solar cells, Renewable Energy Sources and Systems, Energy systems modeling and Simulation, Semiconductor materials and devices, Optical communication, Electric Circuits, Electrical Engineering subjects.

On Job Experiences

January 2017- June 2017	**Head of Department (HOD)** Department of Electrical Engineering
June 2016 – present	**Assistant Professor** Department of Electrical Engineering Federal Urdu University (FUUAST) Islamabad, Pakistan. Courses : Photovoltaic Solar cells, Engineering Mathematics, Renewable Energy Sources and Systems, Energy systems modeling and Simulation, Basic Electrical Engineering, Applied Physics, Optical Fiber communication systems
June 15—May 16	**Research Fellow at** Warsaw University of Technology Poland. INTERWEAVE Project Erasmus Mundus Partnership Asia-Europe Erasmus Mundus Programme

May 12—May 15	**Erasmus Mundus researcher at Universitat Politecnica de Valencia Spain Erasmus Mundus** Project, IDEAS Innovation and Design for Euro-Asian Scholars
Oct 05— May 12	**Lecturer** Electrical Engineering Department FUUAST Islamabad Pakistan Courses: Basic Electrical Engineering (BEE), Semiconductors devices, Electronic Circuit, Data Communication, Computer communication and networks, Optical Fibre Communication, Opto-electronics, Engineering Mathematics

Achievements:

- Sponsorship by European Union through its Erasmus Mundus program (IDEAS Innovation and Design for Euro-Asian Scholars) to conduct research for 36 month at Universitat Politechnica de Valencia (UPV), Valencia Spain
- Sponsorship by European Union through its Erasmus Mundus Program (INTERWEAVE Project Erasmus Mundus Partnership Asia-Europe Erasmus Mundus Programme) to conduct research for 10 month at Warsaw University of Technology Poland.

Academic Affiliations:

- Senior IEEE Member,
- Member, Pakistan Engineering Council (PEC).
- Member, Institute of Engineers Pakistan (IEP).
- Higher Education Commission (HEC) approved Ph.D. Supervisor.
- Member of Valencia ACOGE, Spain.
- Member of Rural development Organization, Pakistan

RESEARCH PUBLICATIONS:

1. **Hanif Ullah**, and Bernabé Marí. "Numerical analysis of SnS based polycrystalline solar cells," *Superlattices and Microstructures* 72 (2014): 148-155.
2. **Hanif Ullah**, Bernabé Marí, and Hai Ning Cui. "Investigation on the effect of Gallium on the efficiency of CIGS solar cells through dedicated software." In Applied Mechanics and Materials, vol. 448, pp. 1497-1501. Trans Tech Publications Ltd, 2014.
3. Ullah, Shafi, **Hanif Ullah**, Feriel Bouhjar, Miguel Mollar, and Bernabé Marí. "Synthesis of in-gap band CuGaS2: Cr absorbers and numerical assessment of their performance in solar cells." Solar Energy Materials and Solar Cells, 180 (2018): 322-327.
4. Ullah S, Andrio A, Marí-Guaita J, Hanif ***Ullah*** , Méndez-Blas A, del Castillo Vázquez RM, Mari B, Compañ V. An intrinsic electrical conductivity study of perovskite powders MAPbX 3 (X= I, Br, Cl) to investigate its effect on their photovoltaic performance. Physical Chemistry Chemical Physics. ***2024.***
5. Ullah S, ***Hanif Ullah***, Parra SG, Andrio A, Mari B, Compañ V. Improvement of optical and conductivity properties of SnS2 via Cr doping for photovoltaic applications. Journal of Alloys and Compounds. ***2023*** Oct 15;960:171047.
6. Ullah, Shafi, **Hanif Ullah**, Feriel Bouhjar, Miguel Mollar, Bernabé Marí, and Adil Chahboun. "Influence of Zinc Content in Ternary ZnCdS Films Deposited by Chemical

Bath Deposition for Photovoltaic Applications." ECS Journal of Solid State Science and Technology 7, no. 8 (2018): P345-P349.

7. Bouich, Amal, Bouchaib Hartiti, **Hanif Ulla**h, Shafi Ullah, Mohamed Ebn Touhami, D. M. F. Santos, and Bernabe Mari. "Optoelectronic characterization of CuInGa (S) 2 thin films grown by spray pyrolysis for photovoltaic application." Applied Physics A 125, no. 8 (2019): 579.
8. Ullah, Shafi, Amal Bouich, **Hanif Ullah**, Bernabé Mari, and Miguel Mollar. "Enhanced optical and structural properties of V-doped binary SnS2 buffer layer." *Solar Energy* 204 (2020): 654-659.
9. Ullah, Shafi, Amal Bouich, **Hanif Ullah**, Bernabé Mari, and Miguel Mollar. "Comparative study of binary cadmium sulfide (CdS) and tin disulfide (SnS2) thin buffer layers." *Solar Energy* 208 (2020): 637-642.
10. Bouich, Amal, Bouchaib Hartiti, Shafi Ullah, **Hanif Ullah**, Mohamed Ebn Touhami, D. M. F. Santos, and Bernabe Mari. "Optoelectronic characterization of CuInGa (S) 2 thin films grown by spray pyrolysis for photovoltaic application." *Applied Physics A* 125, no. 8 (2019): 1-9.
11. Bouich, Amal, Shafi Ullah, **Hanif Ullah**, Miguel Mollar, Bernabé Marí, and Mohamed Ebn Touhami. "Electrodeposited CdZnS/CdS/CIGS/Mo: characterization and solar cell performance." *JOM* 72, no. 2 (2020): 615-620.
12. Skhouni, O., Ahmed El Manouni, Bernabe Mari, and **Hanif Ullah**. "Numerical study of the influence of ZnTe thickness on CdS/ZnTe solar cell performance." The European Physical Journal Applied Physics 74, no. 2 (2016): 24602.
13. Ullah, Shafi, Amal Bouich, **Hanif Ullah**, Erika Vega Fleitas, Faisal Baig, Yousaf Hameed , Miguel Mollar, and Bernabe Mari. “Influence of Fe Content in Binary SnS2 Synthesis by Hydrothermal Technique for Photovoltaic Application." ECS Journal of Solid State Science and Technology. Volume 8, issue 6, (2019) Q118-Q122 doi: 10.1149/2.0251906jss.
14. Bouich, Amal, Bouchaib Hartiti, Shafi Ullah, **Hanif Ullah**, Mohamed Ebn Touhami, D. M. F. Santos, and Bernabé Mari. "Experimental, theoretical, and numerical simulation of the performance of CuInxGa (1-x) S2-based solar cells." Optik 183 (2019): 137-147.
15. Baig, Faisal, Yousaf Hameed Khattak, Shafi Ullah, Bernabé Marí Soucase, S Beg, and **Hanif Ullah.** "Numerical analysis a guide to improve the efficiency of experimentally designed solar cell." Applied Physics A 124, no. 7 (2018): 471.
16. Khattak, Y. H., Baig, F., Ullah, S., Marí, B., Beg, S., & **Hanif Ullah**, Numerical modeling baseline for high efficiency (Cu2FeSnS4) CFTS based thin film kesterite solar cell. Optik, 164, 547-555, 2018.
17. Khattak, Yousaf Hameed, Faisal Baig, Hanae Toura, Shafi Ullah, Bernabé Marí, Saira Beg, and **Hanif Ullah**. "Effect of CZTSe BSF and minority carrier life time on the

efficiency enhancement of CZTS kesterite solar cell." Current Applied Physics 18, no. 6 (2018): 633-641.

18. Khattak, Yousaf Hameed, **Hanif Ullah**, Faisal Baig, Shafi Ullah, Bernabé Marí, and Saira Beg. "Enhancement of the conversion efficiency of thin film kesterite solar cell." Journal of Renewable and Sustainable Energy 10, no. 3 (2018): 033501.
19. Khattak YH, **Ullah Hanif**, Baig F, Ullah S, Mar´ı B, Beg S, "Efficiency Enhancement of Cu2FeSnS4 based Thin Film Solar Cell: A Numerical Analysis". Journal of Nanoelectronics and Optoelectronics (JNO) 2018.
20. Baig, Faisal, Yousaf H. Khattak, Shafi Ullah, Bernabe Mari, Saira Beg, and **Hanif Ullah.** "Numerical Analysis of a Novel FTO/n-MAPbI3/p-MAPbI3/p-MAPbBr3 Organic–Inorganic Lead Halide Perovskite Solar Cell." *Journal of Nanoelectronics and Optoelectronics* 13, no. 9 (2018): 1320-1327.
21. Rahat Ullah, Fisal, N., Safdar, H., Khalid, Z., Maqbool, W., and **Hanif Ullah**. "Stochastic Geometry Based Dynamic Fractional Frequency Reuse for OFDMA Systems," *Jurnal Teknologi*, *67*(1), (2014).
22. Ullah, Rahat, **Hanif Ullah**, Zubair Khalid, and Hashim Safdar. "Irregular Geometry Based Sectored FFR Scheme for ICI Mitigation in Multicellular Networks." Journal of Communications 15, no. 11 (2020).
23. Khattak, Yousaf H., Tahir Mahmood, Khurshid Alam, Tahir Sarwar, Inayat Ullah, and **Hanif Ullah**. "Smart energy management system for utility source and photovoltaic power system using FPGA and ZigBee." *American Journal of Electrical Power and Energy Systems* 3, no. 5 (2014): 86-94.
24. Shafi, M. A., Bouich, A., Khan, L., Ullah, H., Guaita, J. M., Ullah, S., & Mari, B. (2022). Optimization of electrodeposition time on the properties of Cu2ZnSnS4 thin films for thin film solar cell applications. Optical and Quantum Electronics, 54(8), 1-13.
25. Shafi, M. A., Khan, L., Ullah, S., Shafi, M. Y., Bouich, A., Ullah, H., & Mari, B. (2022). Novel compositional engineering for~ 26% efficient CZTS-perovskite tandem solar cell. Optik, 253, 168568.
26. Shafi, M. A., Ullah, H., Ullah, S., Khan, L., Bibi, S., & Soucase, B. M. (2022). Numerical Simulation of Lead-Free Sn-Based Perovskite Solar Cell by Using SCAPS-1D. Engineering Proceedings, 12(1), 92.
27. Ahmed, F., Baig, F., Khattak, Y. H., Ullah, H., & Soucase, B. M. (2021). Enhanced System Architecture for Smart Home Energy Management System Using Knapsack Algorithm with Integration of Solar Photovoltaic Energy Source. Applied Solar Energy, 57(3), 242-251.
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30. Faisal Baig, Yousaf Hameed Khattak, Bernabé Marí, Shafi Ullah, **Hanif Ullah** "Efficiency Enhancement of SnS Solar Cell using Back Surface Field"IEEE International Conference on Power, Energy and Smart Grid (ICPESG-2018) 09th – 10th April, 2018
31. Shafi Ullah, **Hanif Ullah,** Miguel Mollar, Bernabé Marí, Fabrication of Cd1-xZnxS Buffer layer Deposited by Chemical Bath Deposition for Photovoltaic Applications 4th International Renewable and Sustainable Energy Conference (IRSEC) Marrakech, MOROCCO, November 14 - 17, 2016.
32. Faisal Baig, Yousaf Hameed Khattak, **Hanif Ullah**, Bernabé Marí ,Numerical Analysis of SnS Photovoltaic Cells, 4th International Renewable and Sustainable Energy Conference (IRSEC) Marrakech, MOROCCO, November 14 - 17, 2016.
33. Thierno Sall, Bernabé Marí Soucase, Miguel Mollar, Mounir Fahoume, and **Hanif Ullah** "Influence of Alcohol Percentage on the β-In2S3 Thin Films Properties Deposited by Chemical Spray Pyrolysis Technique for Photovoltaic Applications," 3rd International Conference on Environment and Sustainable Development (EESD) Oct 22-24, 2014.
34. **Hanif Ullah**, and Bernabé Marí, "Baseline of numerical simulations for ZnTe based thin-film solar cells," International Conference on Energy Systems and Policies (ICESP 14), Nov 24 – 26, Islamabad Pakistan 2014.
35. Inmaculada Guaita-Pradas, **Hanif Ullah**, Shafi Ullah and Bernabé Marí "Engineering Education in Third Countries through International EU Cooperation Programmes," 4TH VALENCIA GLOBAL 2014, 19-20 June 2014, Valencia, Spain.
36. **Hanif Ullah**, Shafi Ullah and Bernabé Marí "Photovoltaic Solar cells a technological review," The 2nd Abasyn International Conference on the Technology and Business Management (AiCTM-2014), Peshawar, Pakistan 2014 (Oral)
37. **Hanif Ullah**, Inmaculada Guaita-Pradas and Bernabé Marí "Emerging of photovoltiac technology in Energy deficient market of Pakistan," 2nd International Conference on Business Innovation and Management (ICBIM-2014), Islamabad Pakistan 26-27 April 2014.
38. **Hanif Ullah,** Bernabé Marí, and Luis M. Sánchez Ruiz, "Comparative analysis of CIGS thin film and Multilayer Solar cells," ICEE/ICIT 2014, Riga, Latviya 2-6 June 2014.
39. **Hanif Ullah**, Shafi Ullah and Bernabé Marí "Numerical Analysis of Photovoltaic Solar Cells based on low cost thin film sulfides," E-MRS SPRING MEETING, Congress Center - Lille, France 26-30 May, 2014 (Poster).
40. **Hanif Ullah**, Bernabé Marí and Luis M. Sánchez Ruiz, "Modelling and Analysing CIGS Thin-film Solar Cell by SCAPS" 2013 international conference on engineering education and research iceer-2013 Marrakesh, Morocco July 1 -5, 2013 (Poster).
41. **Hanif Ullah** and Bernabé Marí "Understanding the behaviour of thin film solar cells by using dedicated software," 21st University Conference on Educational Innovation in Technical Education (xx1cuieet 2013) Valencia, Spain July 10 - 12, 2013.

42. **Hanif Ullah**, Bernabé Marí "Effect of Gallium (Ga) on the Parameters of CIGS Solar Cell through dedicated Software SCAPS," FEIIC 5th World Engineering Congress 2013 NUST Islamabad Pakistan 23-25 September 2013.
43. **Hanif Ullah**, Bernabé Marí "Modelling and Analysing CdTe Thin-film Solar Cell by SCAPS," International Congress on Energy Efficiency and Energy Related Materials (ENEFM 2013) Antalya, Turkey, 9 -12 October 2013.
44. **Hanif Ullah**, Bernabé Marí "Numerical Analysis of SnS based (SnS/**ZnS**/ZnO) Polycrystalline Solar Cell," 12th International Conference on Condensed Matter and Statistical Physics (ICCMSP) Errachidia-Morocco October 30 - November 01, 2013.
45. **Hanif Ullah**, Bernabe Mari Soucase "Numerical Analysis of SnS based (SnS/**CdS**/ZnO) Polycrystalline Solar Cell," EMRS 2013 Fall Meeting Warsaw University of Technology Poland 16 -20 September 2013.
46. O. Skhouni, A. El Manouni , Bernabé Marí, and **Hanif Ullah,** "Preparation of ZnTe thin films and numerical simulation of znte based solar cell," ICOME'15, Tetouan, Morocco, May 19-22, 2015.
47. **Hanif Ullah**, Bernabe Mari Soucase**,** "$CuInSe_2$, $CuGaSe_2$ and $CuInGaSe_2$ based thin film solar cells: Theoretical vs experimental analysis," International Conference Power Generation Systems and Renewable Energy Technologies (PGSRET 2015), Islamabad, Pakistan, 10-11 June, 2015.
48. **Hanif Ullah**, Bernabe Mari Soucase and Luis M. Sánchez Ruiz "Effect of defects on the performance of some photovoltaic solar cells: an introduction to research methods to engineering students," International Conference on Engineering Education (ICEE 2015), Zagreb Zadar (Croatia), 20-24 July 2015
49. **Hanif Ullah**, and Bernabé Marí, "Numerical Analysis of $CuInS_2$ Based Solar cell by SCAPS," 2nd ENEFM 2014, Lykia, Oludeniz Turkey.

Member of Organising Committee, "7th International Image Processing and wavelet on Real-world Applications Conference" IWW 2013, Valencia.

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