

# **Curriculum Vitae of Dr. Syed Mujtaba Shah**

## **HEC Approved Ph.D Supervisor.**

### *Permanent Address:*

*Master colony Mansab charasdda road P/O Mardan,*

*District & Tehsil Mardan,*

*Khyber Pakhtunkhwa, Pakistan*

*Designation: Associate Professor (Tenured)*

### *Official Address:*

*Department Of chemistry Quaid-i-Azam University*

*Islamabad, 45320 Pakistan.*

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### **CAREER OBJECTIVE:**

***To prove my worth in the challenging atmosphere.***

***LANGUAGES: English, French, Urdu and Pashto.***

### ***Academic Education***

- Ph.D. from CiNaM (Centre Interdisciplinaire de Nanoscience de Marseille, Université de la Méditerranée, Aix Marseille II France.( **June 2010**).
- Master of Science (**M.Sc**) in Chemistry from Institute of chemical Sciences University of Peshawar, Pakistan with Specialization in “Physical Chemistry.”
- Graduation (**B.Sc**) from University of Peshawar, Pakistan. Major subjects being Chemistry, Botany and Zoology.
- Intermediate (**F.Sc**) from Govt. P.G. College Mardan (N.W.F.P). Major Subjects being Chemistry, Physics and Biology.
- Matriculation from *Govt.High School No. 2 Mardan.*

### ***Professional Qualification***

- Master of education (M.Ed) from institute of Education and Research University of Peshawar, Pakistan 1998.
- Bachelor of education (B.Ed) from institute of education and research University of Peshawar, Pakistan 1995.

### ***Distinctions***

- Secured overall **1<sup>st</sup> position** in college in **B.Sc** (university level examination).
- Secured overall **2<sup>nd</sup> position in M.Sc chemistry and 1<sup>st</sup> position in M.Sc. Physical Chemistry** in the order of merit.

### ***Awards:***

- Awarded merit scholarship for PhD studies in France by the Higher Education of Pakistan.
- Awarded research project, ( No-20-/2329/NRPU/R&D/HEC/12) **harvesting solar energy with hybrid bulk heterojunction solar cells.** (Rs 8.8 millions) by the Higher Education Commission of Pakistan.
- Awarded Research project No: 6169/Federal/NRPU/R&D/HEC/2016, **Synthesis and characterization of cost-effective Nanohybrid material for photoelectrochemical solar cells** (Rs 2019127) by the Higher Education Commission of Pakistan.
- Awarded Post doctorate Scholarship by French Embassy Pakistan 2015-16.
- Awarded Performance based increment for the year 2016 by Quaid-iAzam University Islamabad Pakistan.

### ***FIELDS OF INTEREST:***

PHOTOCHEMISTRY and PHOTOVOLTAICS/SOLAR CELLS, SURFACE CHEMISTRY and COLLOIDS ,CHEMICAL KINETICS, THERMODYNAMICS MATERIAL SCIENCE, ALL BRANCHES OF PHYSICAL CHEMISTRY.

### ***RESEARCH INTEREST:***

- **Organic-Inorganic nanohybrid materials, their Synthesis, characterization and applications in solar cells.**
- **Surface functionalization and Surface chemistry.**
- **Photo-electrochemistry.**
- **Fabrication and characterization of Hybrid, BHJ and Dye sensitized solar cells.**

### ***PUBLICATIONS:***

1. Remy, S.; **Shah, S. M.**; Martini, C.; Poize, G.; Margeat, O.; Heynderickx, A.; Ackermann, J.; Fages, F., Functionalization of zinc oxide nanorods with diarylethene-based photochromic compounds. *Dyes and Pigments* **2011**, 89, (3), 266-270. *IF 3.47*
2. **Shah, S. M.**; Martini, C.; Ackermann, J.; Fages, F., Photoswitching in azobenzene self-assembled monolayers capped on zinc oxide: Nanodots vs nanorods. *Journal of Colloid and Interface Science* **2012**, 367, (1), 109-114. *IF 4.23*

3. **Shah, S. M.**; Kira, A.; Imahori, H.; Ferry, D.; Brisset, H.; Fages, F.; Ackermann, J., Co-grafting of porphyrins and fullerenes on ZnO nanorods: Towards supramolecular donor-acceptor assembly. *Journal of Colloid and Interface Science* **2012**, 386, (1), 268-276. *I.F* **4.23**
4. Ali, R. N.; Naz, H.; **Shah, S. M.**, Sulphonic acid functionalized porphyrin grafted ZnO nanorods: Synthesis, characterization and applications in the solid state dye sensitized solar cells. *Dyes and Pigments* **2013**, 99, (3), 571-576. *I.F* =**3.47**
5. Shahzad, N.; **Shah, S. M.**; Munir, S.; Hana, A.; Jabeen, U.; Nosheen, E.; Habib, B.; Khan, A.; Hassan, Z.; Siddiq, M.; Hussain, H., Charge-Transfer Complexation at Carminic Acid-CdS Interface and Its Impact on the Efficiency of Dye-Sensitized Solar Cells. *Journal of Electronic Materials* **2015**, 44, (4), 1167-1174. *I.F*. **1.58**
6. **Shah, S. M.**; Iqbal, Z.; Iqbal, M.; Shahzad, N.; Hana, A.; Hussain, H.; Raheel, M., Role of pristine and acid-functionalized fullerene on breaking dye aggregates and its impact on the efficiency of dye sensitized solar cells. *australian Journal of Chemistry* **2014**, 67, 819-825. *I.F*. **1.33**
7. **Shah, S. M.**; Naz, H.; Ali, R. N.; Alam, F.-e.; Ali, A.; Farooq, M.; Shah, A.; Badshah, A.; Siddiq, M.; Waseem, A., Optical and morphological studies of transition metal doped ZnO nanorods and their applications in hybrid bulk heterojunction solar cells. *Arabian Journal of Chemistry* **2017**, 10, 1118–1124. *I.F* = **4.55**
8. Munir, S.; **Shah, S. M.**; Hussain, H.; Siddiq, M., Adsorption of porphyrin and carminic acid on TiO<sub>2</sub> nanoparticles: A photo-active nano-hybrid material for hybrid bulk heterojunction solar cells. *Journal of Photochemistry and Photobiology B: Biology* **2015**, 153, 397-404. *I.F*. **3.05**.
9. Jabeen, U.; **Shah, S. M.**; Hussain, N.; Alam, F.; Ali, A.; Khan, A.; Khan, S. U., Synthesis, characterization, band gap tuning and applications of Cd-doped ZnS nanoparticles in hybrid solar cells. *Journal of Photochemistry and Photobiology A: Chemistry* **2016**, 325, 29-38. *I.F*. **2.63**.
10. Ali, A.; **Shah, S. M.**; Bozar, S.; Kazici, M.; Keskin, B.; Kaleli, M.; Akyürekli, S.; Günes S., Metal-free polymer/MWCNT composite fiber as an efficient counter electrode in fiber shape dye-sensitized solar cells. *Nanotechnology* **2016**, 27, 384003. *I.F*. **3.44**.

11. Ali, A.; Shehzad, K.; Rehman, F-U.; **Shah, S. M.**; Khurram, M.; Mumtaz, M.; Sagar, R-U. R., Flexible, Low Cost, and Platinum-Free Counter Electrode for Efficient Dye-Sensitized Solar Cells. *ACS applied Materials and Interfaces* **2016**, 8, 25353–25360. *I.F.* 7.50.
12. Chapel, A.; Dkhil, S. B.; Therias, S.; Gardette, J-L.; Hannani, D.; Poize, G.; Gaceur, M.; **Shah, S. M.**; Wong-Wah-Chung, P.; Videlot-Ackermann, C.; Margeat, O.; Rivaton, A.; Ackermann, J., Effect of ZnO nanoparticles on the photochemical and electronic stability of P3HT used in polymer solar cells. *Solar energy materials and solar cells* **2016**, 155, 79-87. *I.F.* 4.78.
13. Nosheen, E.; **Shah, S. M.**; Hussain, H.; Murtaza, G., Photo-sensitization of ZnS nanoparticles with renowned ruthenium dyes N3, N719 and Z907 for application in solid state dye sensitized solar cells: A comparative study. *Journal of Photochemistry and Photobiology B: Biology* **2016**, 162, 583-591. *I.F.* 2.67.
14. Nosheen, E.; **Shah, S. M.**; Iqbal, Z., Ru-dye grafted CdS and reduced graphene oxide Ru/CdS/rGO composite: An efficient and photo tuneable electrode material for solid state dye sensitized polymer solar cells. *Journal of Photochemistry and Photobiology B: Biology* **2017**, 167, 117-127. *I.F.* 2.67.
15. Jabeen, U.; **Shah, S. M.**; Khan, S. U., Photo catalytic degradation of Alizarin red S using ZnS and cadmium doped ZnS nanoparticles under unfiltered sunlight. *Surfaces and Interfaces* **2017**, 6, 40-49. *I.F.* 1.39
16. Munir, S.; Dionysiou, D. D.; Khan, S. B.; **Shah, S. M.**; Adhikari, B.; Shah, A., Development of photocatalysts for selective and efficient organic transformations. *Journal of Photochemistry and Photobiology B: Biology* **2015**, 148, 209-222. *I.F.* 2.67.
17. Munir, S.; **Shah, S. M.**; Hussain, H.; Khan, R. A., Effect of carrier concentration on the optical band gap of TiO<sub>2</sub> nanoparticles. *Materials and design* **2016**, 92, 64-72. *I.F.* 4.36
18. Ahmad, I.; Shah, S. M.; Ashiq, M. N.; Khan, R. A., Effect of Nd<sup>3+</sup> and Cd<sup>2+</sup> ions co-substitution on the dielectric and electron transport properties of spinel strontium nanoferrites. *Ceramics International* **2016**, 42, 12763-12770. *I.F.* 2.99

19. Ahmad, I.; **Shah, S. M.**; Ashiq, M. N.; Nawaz, F.; Shah, A.; Siddiq, M.; Fahim, I.; Khan, S-U., Fabrication of Nd<sup>3+</sup> and Mn<sup>2+</sup> ions Co-doped Spinal Strontium Nanoferrites for High Frequency Device Applications. *Journal of Electronic Materials* **2016**, 15, 4979–4988. *I.F.* 1.58
20. Rasheed, S.; Aziz, H. S.; Khan, R. A.; Khan, A. M.; Rahim, A.; Nisar, J.; **Shah, S. M.**; Iqbal, F.; Khan, A. R., Effect of Li-Cu doping on structural, electrical and magnetic properties of cobalt ferrite nanoparticles. *Ceramics International* **2016**, 42, 3666-3672. *I.F.* 2.99
21. Shah, A.; Ullah, A.; Rauf, A.; Rehman, Z.-u.; Shujah, S.; **Shah, S. M.**; Waseem, A., Detailed Electrochemical Probing of a Biologically Active Isoquinoline. *Journal of The Electrochemical Society* **2013**, 160, (9), H597-H603. *I.F.* 3.26
22. Farooqi, Z. H.; Khan, H. U.; **Shah, S. M.**; Siddiq, M., Stability of poly(N-isopropylacrylamide-co-acrylic acid) polymer microgels under various conditions of temperature, pH and salt concentration. *Arabian Journal of Chemistry* **2017**, 10, 329-335 . *I.F.* 4.55
23. Munir, S.; Shah, A.; Rana, U. A.; Shakir, I.; Zia ur, R.; **Shah, S. M.**, Probing of the pH-Dependent Redox Mechanism of a Biologically Active Compound, 5,8-Dihydroxynaphthalene-1,4-dione. *Australian Journal of Chemistry* **2014**, 67, (2), 206-212. *I.F.* 1.33
24. Hussain, H.; **Shah, S. M.**, Recent developments in nanostructured polyhedral oligomeric silsesquioxane-based materials via ‘controlled’ radical polymerization. *Polymer International* **2014**, 63, (5), 835-847. *I.F.* 2.07
25. Munir, A.; Ullah, I.; Shah, A.; Rana, U. A.; Khan, S. U.-D.; Adhikari, B.; **Shah, S. M.**; Khan, S. B.; Kraatz, H.-B.; Badshah, A., Synthesis, Spectroscopic Characterization and pH Dependent Electrochemical Fate of Two Non-Ionic Surfactants. *Journal of The Electrochemical Society* **2014**, 161, (14), H885-H890. *I.F.* 3.26
26. Ullah, A.; Ullah, S.; Khan, G. S.; **Shah, S. M.**; Hussain, Z.; Mohammad, S.; Siddiq, M.; Hussain, H., Water Soluble Polyhedral Oligomeric Silsesquioxane Based Amphiphilic Hybrid Polymers: Synthesis, Self-Assembly, and Applications. *European Polymer Journal*. **2016**, 75, ( ), 67-92. *I.F.* 3.53

27. Aziz, H. S.; Rasheed, S.; Khan, R. A.; Rahim, A.; Nisar, J.; Shah, S. M.; Iqbal, F.; Khan, A. R.; Evaluation of electrical, dielectric and magnetic characteristics of Al–La doped nickel spinel ferrites. *RSC Advances*. **2016**, 6, (8), 6589-6597. *I.F.* **3.11**
28. Jabeen, U.; Adhikari, T.; **Shah, S. M.**; Pathak, D.; Nunzi, J-M., Synthesis, characterization and photovoltaic performance of Mn-doped ZnS quantum dots- P3HT hybrid bulk heterojunction solar cells *Optical materials*. **2017**, 73, (), 754762 *I.F.* **2.24**
29. Ullah, S.; Khan, A. Z.; Ullaha, A.; Muhammada, S.; Iqbal, Z.; Ali, Z.; **Shah, S. M.**; Siddiq, M.; Hussain., H., Synthesis and Characterization of Pentablock Copolymers Based on Pluronic® L64 and Poly(methyl methacrylate). *Polymer Science Series B* **2015**, 57, 659-668. *I.F.* **0.62**
30. Jabeen, U.; Adhikari, T.; **Shah, S. M.**; P. Dinesh, Wagner, T.; Nunzi, J-M., Photovoltaic performance of P3HT- Porphyrin functionalized 1D CdS nanostructured organic inorganic bulk heterojunction hybrid solar cells *The European Physical journal Applied Physics*. **2017**, 78, (3), 34809 *I.F.* **0.68**
31. Jabeen, U.; Adhikari, T.; **Shah, S.M.**; Nunzi, J-M.; Badshah, A.; Ahmad, I., Enhancement of efficiency by embedding ZnS and Mn-doped ZnS nanoparticles in P3HT: PCBM hybrid solid state solar cells *The European Physical journal Applied Physics*. **2017**, 78, (3), 34810 *I.F.* **0.68**
32. Jabeen, U.; Adhikari, T.; **Shah, S.M.**; Pathak, D.; Wagner, T.; Nunzi, J-M., Influence of the dopant concentration on structural, optical and photovoltaic properties of Cu-doped ZnS nanocrystals based bulk heterojunction hybrid solar cells *The European Physical journal Applied Physics*. **2017**, 78, (3), 34811 *I.F.* **0.68**
33. Rehman, S. U.; **Shah, S. M.**; Siddiq, M., Synthesis and optical studies of silver nanoparticles (Ag NPs) and their hybrids of smart polymer microgel. *Journal of the Chemical Society of Pakistan*. **2013**, 35, (3), 717-725. *I.F.* **0.327**

34. Shah, L. A.; Farooqi, Z. H.; Naeem, H.; **Shah, S. M.**; Siddiq, M., Synthesis and Characterization of Poly(N-isopropylacrylamide) Hybrid Microgels with different Cross-linker Contents. *Journal of the Chemical Society of Pakistan*. **2014**, 36, (03), 1522-1529. *I.F* 0.327
35. Shabbeer, H. S.; Khan, A. M.; Shah, A.; Rehman, Z.-U.; **Shah, S. M.**; Khan, A. Y.; Shah, S. S., Effect of Acidic and Basic Conditions on the Plasmon Band of Colloidal Silver. *Walailak Journal of Science and Technology (WJST)* **2012**, 9, (3), 229-237. *I.F* 0.086
36. Haider, I.; Siddiq, M.; **Shah, S. M.**; Saif-ur-Rehman., Synthesis and characterization of multi-responsive Poly(NIPAm-co-AAC) microgels. *IOP Material Science and Engineering* **2014**, 60, 0120246. *I.F* 0.32  
Toata Impact 92.28

#### **PRESENTATION IN INTERNATIONAL CONFERENCES:**

- **Hybrid nanocomposites based on semiconducting ZnO nanorods functionalized with supramolecular porphyrin-fullerenes complexes” in Symposium A, of the European Material Science Research Conference (EMRS Spring Meeting 12-16 June 2009) held at Strasbourg France. Syed Mujtaba Shah<sup>1</sup>, Aiko Kira<sup>2</sup>, H. Imahori<sup>2</sup>, Frédéric Fages<sup>1</sup> and Jörg Ackermann<sup>1</sup>, 1 :CiNaM UPR 3118 CNRS, Campus de Luminy case 913, Marseille 13288, France 2 :Department of Molecular Engineering, Graduate School of Engineering, Kyoto University, Kyotodaigak –katsura, Nishikyoku, Kyoto 615-8510, Japan.**
- **Optical switching of azobenzene-based self organized layer on semiconducting ZnO nanospheres and nanorods” in symposium K of the European Material Science Research Conference (EMRS Spring Meeting 12-16 June 2009) held at Strasbourg France. Syed Mujtaba Shah, Jörg Ackermann, Frédéric Fages. CiNaM UPR 3118 CNRS, Campus de Luminy case 913, Marseille, 13288, France.**
- **Porphyrin-fullerene supramolecular complexes with special reference to their applications in Solar Cells” in MNPC 2009 (Materiaux et Nanostructures Pi-Conjugués 09) held at Bordeaux France (19-23 October 2009). Syed Mujtaba Shah<sup>1</sup>, Aiko Kira<sup>2</sup>,**

H. Imahori<sup>2</sup>, Frédéric Fages<sup>1</sup>, Jörg Ackermann<sup>1</sup>, 1 :CiNaM UPR 3118 CNRS, Campus de Luminy case 913, Marseille 13288, France. 2 :Department of Molecular Engineering, Graduate School of Engineering, Kyoto University, Kyotodaigaku -katsura, Nishikyo-ku, Kyoto 615-8510, Japan.

- *Hybrid Nanocomposites based on ZnO nanorods Functionalized with Supramolecular Porphyrin-Fullerene Complexes.* **Syed Mujtaba Shah**<sup>1</sup>, Aiko Kira<sup>2</sup>, H. Imahori<sup>2</sup>, Frédéric Fages<sup>1</sup>, and Jörg Ackermann<sup>1</sup>. 1 :CiNaM UPR 3118 CNRS, Campus de Luminy case 913, Marseille 13288, France. 2 :Department of Molecular Engineering, Graduate School of Engineering, Kyoto University, Kyotodaigaku -katsura, Nishikyo-ku, Kyoto 615-8510, Japan.
- *Sensitization of CdS Nanoparticles with Carminic Acid and its Application in Dye Sensitized Solar Cells.* Naila Shahzad, Amina Hana, **Syed Mujtaba Shah**, and Shamsa Munir, June 3-5 2014, PINSTICH, Islamabad. Quaid-i-Azam University, Islamabad, 45320, Pakistan.

***Ph.D Students supervised:***

<i>S.NO.</i>	<i>Name of Student</i>	<i>Thesis Title</i>	<i>Year of Passing</i>
1.	<i>Miss Shamsa Munir</i>	Synthesis, Characterization, Band gap Tuning and Photosensitization of TiO <sub>2</sub> Nanoparticles for Applications in Hybrid Solar Cells	2016
2.	<i>Mr. Iqbal Ahmad</i>	Studies on Structural, Dielectric and Charge Transport Properties of Spinel Pure and Substituted Strontium Nanoferrites	2017
3.	<i>Mr. Abid Ali</i>	Free-Standing MWCNTs as Electrode Materials for Flexible Energy Harvesting Devices	2017
4.	<i>Miss Erum Nosheen</i>	Band gap Tuning, Photo-sensitization and Applications of ZnS and CdS Nanoparticles in Solid State Dye Sensitized Solar Cells	2018
5.	<i>Miss Uzma Jabeen</i>	Transition Metal Doped ZnS based Photoactive nanohybrid material: Synthesis, Characterization and applications in hybrid solar cells	2018



### **Ph.D Students under supervision:**

1. Mr. Mohammad Nasir Hussain
2. Miss Rutaba Ansir

### **M.Phil Students Supervised:**

<i>S.NO.</i>	<i>Name of Student</i>	<i>Thesis Title</i>	<i>Year of Completion</i>
1.	<i>Mr. Rai Nauman Ali</i>	<i>Synthesis, Characterization and Application of ZnO based Photo-active Nanohybrid Material in Solar Cells.</i>	2011-12
2.	<i>Miss Hina Naz</i>	<i>Synthesis, Characterization and Applications of Transition Metal Doped ZnO Nanorods in Hybrid Solar Cells.</i>	2012-13
3.	<i>Mr. Muzaffar Iqbal</i>	<i>Porphyrin and Quinone Functionalized ZnO Nanoparticles: Synthesis, Characterization and Applications in Solar Cells.</i>	2012-13
4.	<i>Mr. Zafar Iqbal</i>	<i>Porphyrin-Fullerene Interaction; an Effective Remedy against Dye-Aggregation on the Surface of Semi-conducting Nanoparticles and Enhancement of Solar Cell Efficiency.</i>	2012-13
5.	<i>Miss Naila Shahzad</i>	<i>Carminic Acid Sensitized CdS and ZnS Nanoparticles: Synthesis, Characterization and Application in Dye Sensitized Solar Cells.</i>	2013-14
6.	<i>Miss Amina Hana</i>	<i>Synthesis, Characterization and Applications of CdSe Quantum Dots in Solar Cells.</i>	2013-14
7.	<i>Mr. Fakhr-e-Alam</i>	<i>The influence of CuO nanoparticles on the photovoltaic behavior of poly(3-hexylthiophene) based hybrid solar cells.</i>	2013-14
8.	<i>Mr. Muhammad Farooq</i>	<i>Synthesis, Characterization and applications of NiO nanoparticles in Solar cells.</i>	2013-14
9.	<i>Mr. Umar Draz</i>	<i>Computational Studies on the chlorination of (E)-4-(3-bromobenzylideneamino)-3-hydroxybenzoic acid.</i>	2013-14
10.	<i>Mr. Arifullah Khan</i>	<i>Organic Dye-functionalized CuO nanoparticles: Synthesis, Characterization and Applications in Solar cells.</i>	2014-15
11.	<i>Mr. Zubair Hassan</i>	<i>Synthesis, Characterization and applications of NiO and ZnO Nanocomposite in bulk hetero-junction Solar Cells.</i>	2014-15

12.	<i>Miss. Banafsha Habib</i>	<i>Synthesis, Characterization and Applications of CdSe nanoparticles in Hybrid Solar Cells.</i>	2014-15
13.	<i>Miss Iqra Faheem</i>	<i>CdO and ZnO nanoparticles functionalized with Ruthenium Complex: Synthesis, Characterization and applications in Solar Cells.</i>	2014-15
14.	<i>Mr. M. .Nasir Hussain</i>	<i>Synthesis, characterization and applications of Transition metal doped SnO<sub>2</sub> nanoparticles in Solar Cells</i>	2014-15
15.	<i>Mr. Samiullah Khan</i>	<i>Synthesis, characterization and applications of CdTe nanoparticles in dye sensitized solar cells</i>	2015-16
16.	<i>Miss Arifa Batool</i>	<i>Synthesis, characterization and applications of some selected dye-functionalized p and n-type nanoparticles in DSSCs</i>	2015-16
17	<i>Miss Roshna Saba</i>	<i>Synthesis and characterization of CdSe nanoparticles by Sol Gel method: photocatalytic activity and kinetic studies</i>	2015-16
18	<i>Miss Asma Batool</i>	<i>Photovoltaic nanocomposites of SnO<sub>2</sub> with CdO and CuO: Synthesis, characterization and applications in solar cells</i>	2015-16
19	<i>Mr. Abdus Saboor khan</i>	<i>Band gap tuning and applications of ZnO nanorods in Hybrid Solar cells</i>	2016-17
20	<i>Miss Ayesha Khan</i>	<i>Synthesis, Characterization and Applications of Un-doped and Transition Metals Doped CuSe Nanoparticles in Dye Sensitized Solar Cells</i>	2016-17
21	<i>Miss Farkhanda Wakeel</i>	<i>Synthesis, Characterization and effect of Bandgap tuning in Manganese selenide Nanoparticles on the efficiency of the Solar cell</i>	2016-17
22	<i>Miss Muqaddas Jabbar</i>	<i>Effect of Bromopyrogallol Red Dye on the Efficiency of Undoped and Doped ZnSe based Solar Cells</i>	2016-17
23.	<i>Miss Qaria Ammara Naeem</i>		2017-18

***M.Phil Students under supervision:***

1. Mr. Wahidullah
2. Mr. Naveedullah
3. Miss. Zarba Dilbar
4. Mr. Naimatullah
5. Miss Sidra Arif
6. Miss Sidra Batool

## Research Projects Completed/in progress

Project Title	Principal / Co-Principal Investigator	Amount	Sponsoring Agency	Duration	Remarks/status
1. Synthesis and characterization of photo-active nanohybrid material based on semiconducting ZnO nanoparticles.	Principal Investigator	0.5 million	Higher Education Commission of Pakistan.	01 Year 2012-13	Completed
2.NRPU by HEC (Harvesting solar energy With Hybrid Bulk Heterojunction Solar Cells).(No-20/2329/NRPU/R&D/HEC/12	Principal Investigator	8.876630 million	Higher Education Commission of Pakistan	03 years	In progress
3. NRPU by HEC (Synthesis and Characterization of cost-effective Photoactive nanohybrid material for Photoelectrochemical Solar Cells) project No: 6169/Federal/NRPU/R&D/HEC/2016,	Principal Investigator	2.019127 million	Higher Education Commission of Pakistan	02 Years	In progress
4. Synthesis and characterization of Porphyrin and Fullerene Co-grafted ZnO Nanoparticles.	Principal Investigator	0.075 million	Quaid-i-Azam University Islamabad	01 year 2011-12	Completed
5.Synthesis and characterization of transition metal doped ZnO nanorods for application in solar cells.	Principal Investigator	0.044 Million	Quaid-i-Azam University Islamabad	01 year 2012-13	completed
6.Optical, Morphological and photovoltaic studies of Dye-grafted CdSe nanoparticles.	Principal Investigator	0.025Million	Quaid-i-Azam University Islamabad	01 year 2013-14	Completed
7.Organic dye-functionalized Copper Oxide nanoparticles: Synthesis, characterization and application in solar cells.	Principal Investigator	0.060 million	Quaid-i-Azam University Islamabad	01 year 2014-15	Completed
8. Novel Carboxylic Functionalized Porphyrin Grafted CdSe Quantum Dots for Hybrid Bulk Hetrojunction Solar Cells	Principal Investigator	0.1 million	Quaid-i-Azam University Islamabad	01 year 2016-17	In progress

### Major Subjects in M.Sc

➤ Physical Chemistry ➤ Bio chemistry ➤ Organic Chemistry ➤ Inorganic Chemistry ➤ Mathematics ➤ Environmental chemistry

Field of Specialization In M.Sc **“PHYSICAL CHEMISTRY”**

#### Major Subjects

Quantum Chemistry, Surface Chemistry, Nuclear & Radiation Chemistry, Molecular

Spectroscopy, Advanced Thermodynamics , Advanced Chemical Kinetics, Statistical Mechanics, Advanced Photochemistry, Solution Chemistry, Polymers, Electrochemistry, Solid State Chemistry

### ***Major Subjects in M.Phil.***

Tribology, Advanced Spectroscopy, Polymers in controlled drug delivery, Special topics in physical chemistry, Pollution Control Technology, Radiation Chemistry, Surface Chemistry and colloids.

### ***Computer Skills:***

***Literate in the operation of general and scientific softwares.***

## References

- Professor Dr. Frédéric FAGES  
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