

## DR. SYEDA SITWAT BATOOL

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### Professional Preparation

PIEAS Islamabad	PhD	2014	Material Science
BZ University, Multan	M.Phil	2008	Physics
BZ University, Multan	M.Sc	2006	Physics
BZ University, Multan	B.Sc	2004	Physics & Mathematics
Govt. Degree College for Women Multan	F.Sc	2002	Pre-Engineering
F.G. Girls High School, Multan	Matric	2000	Science group

### Professional Appointments

December 2020 -Present Assistant Professor, Department of Physics, COMSATS University Islamabad, Islamabad Pakistan

November, 2019- November, 2020 Postdoc Researcher

August, 2014-October. 2019 Assistant Professor, Department of Physics, COMSATS Institute of Information Technology, Islamabad Pakistan

### Research Interest

“Synthesis and characterization of metal oxides nanostructures: nanofibers, nanoparticles, nanowires and nanorods, for environmental remediation”. Adsorption and photocatalytic activity of nanomaterials. Electron transport and sensing properties of semiconducting nanomaterials, Synthesis of Nanostructures (nanofibers, nanotubes etc.), Electrical Characterization, , Structural characterization of nanomaterial.

### Projects

1. Synthesis of nanofibers for environmental remediations (SRGP).
2. “Surface modification of graphene based metal oxide nanofibers for improved electrical and photocatalytic application” under NRPU, (**10 Million PKR**) “**Principal Investigator**”.
3. “Development of novel nano- structures for waste water treatment, **hydrogen production and storage using photocatalysis water splitting**” Under HEC-TDF, (**14 Millions**) Submitted
4. Synthesis of Compound glasses for better dielectric properties.

### Research Grants

1. NRPU HEC “Surface modification of graphene based metal oxide nanofibers for improved electrical and photocatalytic application” (10 Million PKR).

2. SRGP HEC “Synthesis of complex metal oxide nanofibers for environmental remediation at COMSATS institute of information technology (0.5 million PKR) .

#### Awards

- **6-months Scholarship for Linkoping University 601 74 Norrköping under IRSIP of HEC, Pakistan**
- Merit Scholarship for M.Phil.
- One year Internship at Govt. Girls high school Multan Program offered by Government of Pakistan
- Indigenous Scholarship offered by Higher Education Commission (HEC) of Pakistan for PhD studies.

#### Participation in seminars/conferences/workshops

1. “New energy Technologies and Technology & Applications of Synchrotron light source” held on 2-3 May, 2007 Department of Earth Sciences, Quaid-e-Azam University Islamabad.
2. International Scientific Spring -2010 (ISS-2010) at National Centre for Physics, from March 01- 06, 2010.
3. “Short course on porous carbon materials and polymer-fiber composite” conducted from 28-30 may 2013 Department of Nuclear Engineering PIEAS Islamabad.
4. Member Organising Committee “Optics & Photonics Workshop” conducted from 15-19 August 2016.

#### List of Publications

Serial Number	Publication (Total IF = 75)	Citation 338
1	Sajid Khan, Asghar Hussain, Kexin He, Bingxue Liu, Zahid Imran, Jaweria Ambreen, Safia Hassan, Mushtaq Ahmad, Syeda Sitwat Batool, Chuanbo Li, (Tailoring the bandgap of Mn <sub>3</sub> O <sub>4</sub> for visible light driven photocatalysis), Journal of Environmental Management, 293, (2021)112854.	0
2	Atiya Khalid, Naveed Akhtar, Kexin He, Bingxue Liu, Mushtaq Ahmad, Jaweria Ambreen, Safia Hasan, Xiaoming Zhang, Syeda Sitwat Batool, Chuanbo Li, (Bismuth sulfide photocatalysis water treatment under visible irradiation), Research on Chemical Intermediates ,(2021)1-15.	0
3	A Sultan, M Ahmad, Z Imran, SS Batool, K Rasool, S Hassan, MA Rafiq, (Tailoring structural, dielectric and optical effects of PbS nanosheets with Ni doping), Physica B: Condensed Matter 602, 412571	0
4	SS Batool, Z Imran, K Rasool, J Ambreen, S Hassan, S Arif, M Ahmad, ...(Study of electric conduction mechanisms in bismuth silicate nanofibers), Scientific reports 10 (1), 1-10	2
5	S Hassan, T Yasin, Z Imran, SS Batool (Investigation of copper (Cu <sup>2+</sup> ) adsorption performances and gamma radiation dose effect of polymeric hydrogel) AIP Advances 8 (2017), 025301.	3
5	Arifa Jamil <sup>1</sup> , S. S. Batool, F. Sher and M. A. Rafiq,	13

	(Determination of density of states, conduction mechanisms and dielectric properties of nickel disulfide nanoparticles) AIP Advances 6, (2016) 055120.	
6	S. S. Batool, Z. Imran, Safia Hassan, Kamran Rasool, Mushtaq Ahmad, M. A. Rafiq, (Comparison of different phases of bismuth silicate nanofibers for photodegradation of organic dyes) International Journal of Environmental Science and Technology, 13 (2016) 1497-1504.	13
7	S.S Batool, Z Imran, S Hassan, K Rasool, M Ahmad, MA Rafiq, (Enhanced adsorptive removal of toxic dyes using SiO <sub>2</sub> nanofibers), Solid State Sciences 55 (2016) 13–20.	17
8	S Hassan, T Yasin, Z Imran, <b>S.S. Batool</b> , (Silane Based Novel Crosslinked Chitosan/Poly (Vinyl Alcohol) Membrane: Structure, Characteristic and Adsorption Behaviour) Journal of Inorganic and Organometallic Polymers and Materials 26 (2016) 208-218.	7
9	Z Imran, K Rasool, <b>S.S Batool</b> , M Ahmad, M.A. Rafiq, (Effect of different electrodes on the transport properties of ZnO nanofibers under humid environment), AIP Advances 5 (2015) 117214.	9
10	K Rasool, MA Rafiq, M Ahmad, Z Imran, <b>S.S. Batool</b> , A Nazir, ZAK Durrani, (Charge injection and trapping in TiO <sub>2</sub> nanoparticles decorated silicon nanowires arrays), Applied Physics Letters 106 (2015) 073101.	6
11	Matloob Hussain#, <b>S. S. Batool</b> #, Z. Imran, Mushtaq Ahmad, Kamran Rasool, M. A. Rafiq, M. M. Hasan, (Oxygen sensing and transport properties of Bismuth doped Silica and Bismuth Silicate nanofibers prepared via electrospinning), Sensors and Actuators B Chemicals 192 (2014) 429– 438.	13
12	<b>S. S. Batool</b> , Safia Hassan, Z. Imran, M. A. Rafiq, Mushtaq Ahmad, Kamran Rasool, M.M. Chaudhry, M. M. Hasan, (The enhancement in photocatalytic activity of bismuth modified silica and bismuth silicate nanofibers), catalysis communication 49 (2014) 39-42.	19
13	Z. Imran, <b>S. S. Batool</b> , M. A. Rafiq, M. Ahmad, K. Rasool, R.shahid , and M. M. Hasan (Investigation of change in surface area and grain size of cadmium titanate nanofibers upon annealing and their effect on oxygen sensing), ACS applied materials & interfaces 6 (2014) 4542-4549.	19
14	Muhammad Usman, Kamran Rasool, <b>S. S. Batool</b> , Z. Imran, Mushtaq Ahmad, Hira Jamil, M. A. Rafiq* and M. M. Hassan, (Humidity dependent transport properties of titanium dioxide nanoparticles), Journal of material science and technology 30 (2014) 748-752	11
15	<b>S. S. Batool</b> , Z. Imran, M. A. Rafiq, M. M. Hasan, M. Willander, Investigation of dielectric relaxation behavior of electrospun titanium dioxide nanofibers using temperature	25

	dependent impedance spectroscopy, Ceramic International 2 (2013) 1775-1783.	
16	<b>S. S. Batool</b> , Z. Imran, M. Q. Israr, J. R. Sadaf, M. Usman, H. Jamil, M. A. Rafiq, M. M. Hasan, O. Nur and M. Willander, (Silica nanofibers based Impedance type humidity detector prepared on glass substrate), Vacuum 87 (2013) 1-6.	13
17	<b>S. S. Batool</b> , Z. Imran, M. Q. Israr, M. Usman, Hira Jamil, M. A. Rafiq*, M. M. Hassan, M. Willander, Comparative analysis of Ti, Ni, and Au electrodes on characteristics of TiO <sub>2</sub> nanofibers humidity sensors. Journal of material science and technology 29 (2013) 411-414	12
18	Z. Imran, <b>S. S. Batool</b> , H. Jamil, M. Usman, M. Q. Israr, S. H. Shah, J. R. Sadaf, M. A. Rafiq, M. M. Hasan, and M. Willander, (Excellent humidity sensing properties of cadmium titanate nanofibers), Ceramic International Volume 39 (2013) 457-462	46
19	Z. Imran, M. A. Rafiq, M. Ahmad, K. Rasool, <b>S. S. Batool</b> , and M. M. Hasan (Temperature dependent transport and dielectric properties of cadmium titanate nanofiber mats), AIP Advances (2013) 3032146	31
20	Kamran Rasool, M. A. Rafiq, Mushtaq Ahmad, Z. Imran, <b>S.S. Batool</b> , M. M. Hasan, (Photodetection and transport properties of surface capped Silicon nanowires arrays with polyacrylic acid), AIP Advances 3 (2013) 082111.	9
21	Z. Imran, S. S. Batool, M. Q. Israr, J. R. Sadaf, M. Usman, H. Jamil, M. Y. Javed, M. A. Rafiq, M. M. Hasan, O. Nur and M. Willander (Fabrication of Cadmium Titanate Nanofibers via Electrospinning technique), Ceramic International 38 (2012) 3361-3365	23
22	Hira Jamil, <b>S. S. Batool</b> , Muhammad Usman Zahid Imran, Kamran Rasool, M.A. Rafiq, M. Willander, and M.M. Hassan, (Electrospun titanium dioxide nanofiber humidity sensors with high sensitivity), Ceramic International 38 (2012) 2437-2441.	38

### **Conference Publications**

1. **S.S..Batool**, Photocatalytic activity of Bi<sub>4</sub>(SiO<sub>4</sub>)<sub>3</sub> nanofibers for removal of toxic dyes, First International Conference on Mathematics and Physics, Air University Islamabad Pakistan ( February 14-16, 2017).
2. **S.S. Batool**, H. Jamil, M. Usman, Z. Imran, M. A. Rafiq, M. M. Hasan, M. Willander, Photocatalytic and Humidity Sensing properties of metal oxide

nanofibers, International Nanofiber Symposium /N3M-Nanofibers for the 3rd millennium" Tokyo Japan (4/6/2012-5/6/2012) .

3. .Zahid Imran, M. A. Rafiq, Mushtaq Ahmad, **S. S. Batool**, Kamran Rasool, M. M. Hasan, Electrospun Cadmium Titanate Nanofiber mats, Poster presentation in International Scientific Spring 2013, held on 11-15 March in NCP, Islamabad.

### **Theses Supervisions**

BS: 2 Group

MPhil/MS : 7

### **Teaching Skills**

Teaching different courses to undergraduate and graduate.

- Supervision & Co-supervision of students under Ms. level
- Involved in teaching subjects like Heat and Thermodynamics, Electricity and magnetisam to Becholar of Physics
- Involved in teaching Modern Physics and Solid State Physics to Becholar of Electronics
- Involved in conducting Laboratries (Modern Physics, Heat and Thermodynamics, Characterization of Materials) under undergraduate and graduate levels.