RESEARCH MAP 2018 (Dr. Syeda Sara Hassan)

Research Interests: Environment, Water Quality, Water & Waste Water treatment, Heavy Metals, Microbial Pollution, Organic & Inorganic Pollutants, Analytical Chemistry, Nanocatalysts, Nano sensors & biosensors, Electrochemical sensors, Spectroscopic & Chromatographic Methods, Advanced Nanotechnology

Total Impact Factors of published papers: "63.6"; Total No. of Publications: "18"; Google Scholar h-index: "8"; Research Gate Score: "21.48"

SDG GOAL NO: 6.0

-By 2030, improve water quality by treatment and removal of toxic chemicals from wastewater and further re-use for industrial application.
-Substantial increase in water use efficiency in industrial sector by minimizing water consumption at source and optimization of water usage in industrial processes.

Current projects (04)

1) Research Proposal has been Accepted to be funded within 2216 research fellowship Programme for International Researchers.(will start from AUG-2018)

Topic: Synthesis, characterization and bio-sensing applications of metal nanoparticles in water Sallauddin (Ph.D.)

Novelty/Impact: Bio-sensing of pathogens from water and how to commercialize this product

Support: Turkish Government (International) 40,000 Turkish Lira (TR)
SDG Goal: SDG 6.0
Role: Working as PI

2) On-Going

Topic: Treatment and reuse of wastewater of fish processing industry

Novelty/Impact: An important socio-economic benefit to improve water quality of fish processing industrial sector. Overall pollution loading from fish processing industries will be minimized
Support: 3.00 million PKR , USPCASW, MUET
SDG Goal: SDG 6.0
Role: Working as a Team Member

3) On-Going

Topic: Production of drinking water from Indus River through Canal bank filtration for Mehran University Jamshoro: Estimation of yield, pumping requirements, bioclogging, and characterization of water quality

Support: 3.0 million PKR, USPCASW, MUET
SDG Goal: SDG 6.0
Role: Working as a Co.PI

4) On-Going

Topic: Eco-Innovation in Textile Processing Industry of KITE for Sustainable Product Processing

Novelty/Impact: An important socio-economic benefit to improve water quality and overall pollution loading
Support: 3.00 million PKR, USPCASW, MUET
SDG Goal: SDG 6.0
Role: Working as a Team Member

Collaborators

- Dr. Zubair Ahmed (USPCAS-W, MUET)
- Dr. Rasool Bux Mahar (USPCAS-W, MUET)
- Dr. Krista Carlson (University of Utah, USA)
- Dr. Arjuman Zaidi (USPCAS-W, MUET)
- Dr. Asmat Ullah (USPCAS-W, MUET)
- Dr. Jeffery Ullman (University of Utah, USA)
- Dr.Jennifer Lee Weidhaas (University of Utah, USA)
- Dr. Uğur Tamer (Gazi University, Turkey)
- Dr. Sirajuddin (NCEAC, University of Sindh)
- Dr. Syed Tufail Hussain Sherazi (NCEAC, University of Sindh)
- Dr. Amber Rehana Solangi (NCEAC,

Graduate students supervising (08)

Total 8 students supervised with following topics

1) Mr. Agha Danish Ilyas: (First draft of thesis has been submitted on 30th June 2018)
"Microbial assessment and cost benefit analysis of green roof water recycling system for grey water treatment in Sindh" ,***EnvE (MS: 2016)***

2) Abdul Majeed: "Ultra Fast Degradation of The Azo Dyes Using Metal/Metal Oxide Nano Composites"
EnvE (Ms: 2016)

3) Muhammad Ali Mangi: "Development of an Electrochemical Sensor for the Detection of Heavy Metal Ions from Water"
EnvE (MS: 2017)

4) Muammar Ali Chang: "Nanoparticles Incorporated Nanofirbres Based Electrochemical Sensor for the Detection of Organic Pollutants in Contaminated Water" ***EnvE (MS:2017)***

5) Syed Shane Zehra: "Removal of Arsenic by Nanomaterials"
EnvE, (MS: 2017)

6) Hussain Bux: "Physical, Chemical parameters of Mirpur khas water"
EnvE (MS: 2018)

7) Sallahuddin Panhwar: "Synthesis, Characterization and Biosensing Applications" ***EnvE (Ph.D:2015)***

8) Imdad Ali Nizamani: "Assessment of Waterborne Diseases, Health Care Cost and Health Seeking Behavior In Urban Slums of Hyderabad"
WASHs (MS: 2016)

Future Activities

1) Topic: Ultrafast photo-catalytic degradation of the organic dyes by using metal/metal oxide nanoparticles

2) Topic: Bio-sensing platform based on nanoparticles for waterborne bacterial pathogens
Support: NRPU, HEC, Pakistan
SDG Goal: SDG 6.0

Research Infrastructure

- Water & Wastewater treatment
- Physical, Chemical (Water quality parameters) by Multi Ion probe Meter, Turbidimeter, Colorimetry.
- Bio and electro-chemical sensors By Voltammetric methods
- UV-Visible Spectrophotometer
- ICP-MS
- TOC analyzer
- Electrospinning for nanofiber fabrication
- High Performance Ion Chromatography (HPIC)
- SEM/TEM,XRD, Zeta sizer , BET, etc.

Publications (July 2017-June 2018) (IF: 12.625)

1) *Syeda Sara Hassan*, Journal of Inorganic and Organometallic Polymers and Materials, 28, 863-870 (May 2018).
2) *Syeda Sara Hassan*. Environmental Pollution, 237, 731-739 (June 2018).
3) *Syeda Sara Hassan*. Journal of The Electrochemical Society, 164, B427-B434 (July 2017).
4) *Syeda Sara Hassan*. Electroanalysis, 29, 2803-2809 (December 2017).