

Issue 06 | Apr-Jun 2018

Syed Babar Ali School of Science & Engineering

Newsletter



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RANKED
QS WORLD UNIVERSITY RANKINGS
2018 *by subject*
ENGINEERING & TECHNOLOGY
TOP 451-500

CONVOCATION 2018

Highest number of PhD students graduated

FIRST SMART WHEELCHAIR OF PAKISTAN

MS Electrical Engineering student achievement

GOOGLE RESEARCH AWARD

LUMS feels proud of CS Professors

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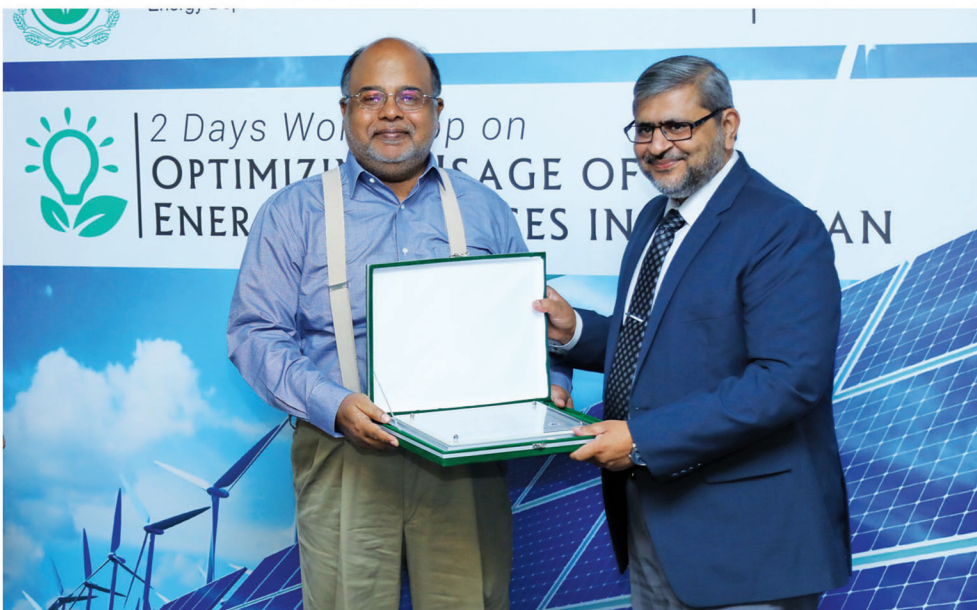
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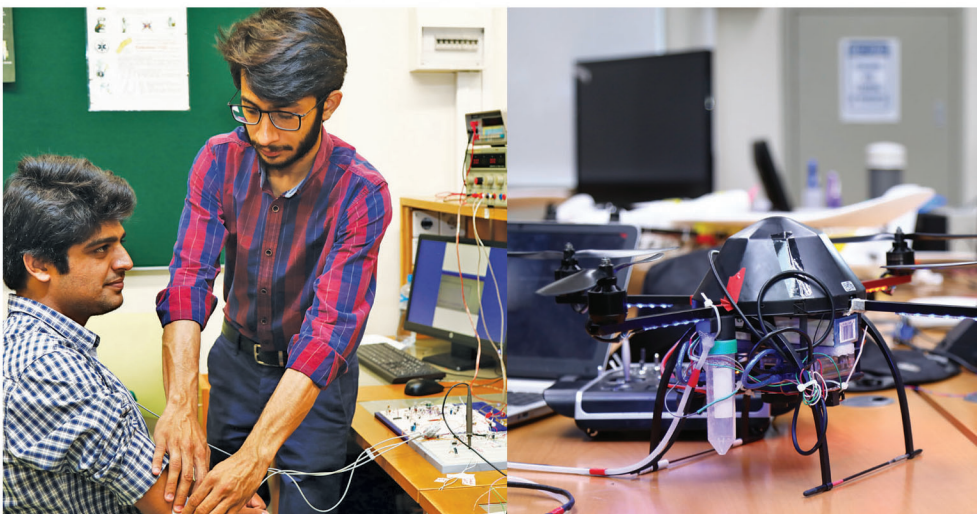
Services at SBASSE - Academic Affairs Office



From Right to Left: Prof. Dr. Sohail.H.Naqvi, Vice Chancellor, LUMS; Abdul Razak Dawood, Rector, LUMS; Dr. Naveed Arshad, Interim Director, NCBC; Ahsan Iqbal, Ex Federal Minister.



Dr. Jahangir Ikram, Associate Professor at Department of Electrical Engineering, presenting Souvenir to Prof. Shahid Masud, Dean SBASSE, in a workshop, "Optimizing Usage of Energy Resources In Pakistan."



Senior Year Design Projects Open House 2018

SYED BABAR ALI SCHOOL OF SCIENCE AND ENGINEERING RANKED AMONG THE TOP 451-500 INTERNATIONAL UNIVERSITIES IN ENGINEERING & TECHNOLOGY CATEGORY

The Syed Babar Ali School of Science and Engineering (SBASSE), Lahore University of Management Sciences (LUMS), has been ranked among the top 451-500 universities of the world, in the QS World Rankings by Subject 2018 in the 'Engineering and Technology' category. QS has declared Engineering and Technology as the University's strongest field at 451-500 in the world and has given the category an overall score of 61.3.

This is another feather in SBASSE's cap after its Mathematics department was ranked No. 1 in Pakistan according to the QS University Rankings 2016. Previously LUMS was ranked as the number 1 University in Pakistan and 111th in Asia, jumping 50 ranks from the previous years; it was at 161 position in 2015, 181 in 2014, between 191 – 200 in 2013 and 251 – 300 in 2012.

Syed Babar Ali School of Science and Engineering (SBASSE), started in 2008 and it is the first private research school for Science and Engineering in Pakistan with a vision 'to carry out world-class,

multidisciplinary education and research.' Modelled on some of the leading universities of the world, it aims to be a paradigm shift for science and engineering education in the country. SBASSE offers four-year undergraduate programmes of Bachelor of Science (BS) degree in Biology, Chemistry, Chemical Engineering, Computer Science, Electrical Engineering, Mathematics and Physics. In addition, SBASSE offers MS and PhD degrees in Biology, Chemistry, Computer Science, Electrical Engineering, Mathematics and Physics.

Quacquarelli Symonds (QS) University Rankings are one of most prestigious and recognised international university rankings in the world. The rankings take into account performance indicators such as Academic Reputation; Employer Reputation; Citations per Paper; H-Index Citations.

The QS rating system makes it easier for students to locate top universities in particular regions, countries or disciplines. These rankings are also useful for organisations choosing partners and for scholarship providers selecting top ranked universities for sponsorships.

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RANKING CRITERIA



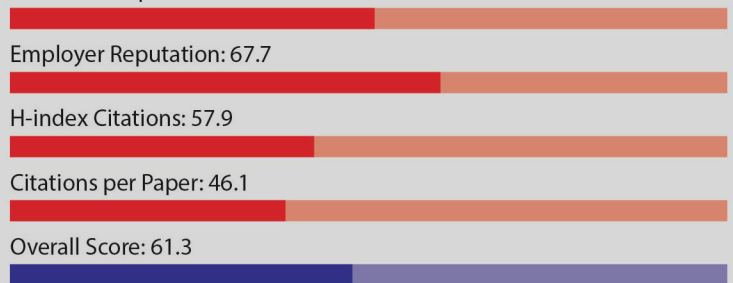
Academic Reputation: 63.4

Employer Reputation: 67.7

H-index Citations: 57.9

Citations per Paper: 46.1

Overall Score: 61.3



PAKISTAN'S 1ST NATIONAL CENTER IN BIG DATA & CLOUD COMPUTING DEVELOPED AT SBASSE

The inauguration of the National Center in Big Data and Cloud Computing took place at LUMS on May 4, 2018. The ceremony was attended by noted personalities from the educational and development sectors of Pakistan. This national center of PKR 1.5 Billion will be housed at SBASSE and it will comprise of 12 'Affiliated' Labs at 11 Universities around the country including LUMS, EME College, PNEC, UETL, UETP, ITU, SZABIST, FAST-NU, CECOS, Ziauddin University and UAF. It will also employ 50 of the country's leading Analytics and Cloud researchers.

The guests at the ceremony were welcomed by Dr. Naveed Arshad, Interim Director, NCBC and Associate Professor, Department of Computer Science, LUMS. He said that Pakistan has a huge population under 30 years of age and that provides an excellent pool of Human Resource that can be tapped to make Pakistan advance to prosperity. He said that data is gold in this age and facilities such as this lab will provide the means to process and analyse the data to solve world problems.

He shared that this Data Center came about after the Higher Education Commission Pakistan launched a competition and called out to all the research groups

working in Pakistani Universities in the field of Big Data and Computing. They were invited through EOI and had to go through a rigorous process of selection including three rounds of competition. "The NCBC will be mainly focused on R&D and human resource development in the specialised field of Big Data and Cloud Computing. The role of Big Data Analytics and Cloud Computing is growing in many businesses and applications become extremely critical to economic growth and national competitiveness.

The idea is to provide a platform for promoting a culture of Big Data Analytics and Cloud Computing industry and related businesses," explained by Dr. Arshad. Present at the launch event were Abdul Razak Dawood, Rector LUMS; Prof. Dr. S. Sohail H. Naqvi, Vice Chancellor, LUMS; Shahid Hussain, Member of the Board of Trustees of LUMS; Dr. Athar Osama, Member Science and Technology Planning Commission; Dr. Arshad Ali, Executive Director, HEC and Federal Minister, Mr. Ahsan Iqbal.

Dr. Naqvi welcomed the guests and congratulated Dr. Naveed Arshad and his team. He said, "Our entire wealth is our youth. We are grateful to the government for recognising the potential LUMS possesses to provide the right environment and the

opportunities to them to explore their potential."

Addressing the gathering, Minister Ahsan Iqbal said that this was an auspicious day for Pakistan marked by a realisation of a dream, which would take Pakistan forward towards positioning itself as a knowledge economy in which prosperity will one day be driven by data which is the "new oil". He also congratulated the LUMS management for producing graduates, who he discovered through LinkedIn, are placed in renowned PhD programmes across the world and many hold important positions at reputable organisations.

At the Center, the following selected labs will be working in a diverse range of fields including Agriculture, Medicine, Health, Energy, Internet of things, Astronomy and others:

Digital Pakistan Lab – CEME, NUST, Rawalpindi; Distributed Computing Lab – LUMS; Language Engineering Lab – UET Lahore; Exascale Open Data Lab – NED UET, Karachi; Precision Medicine Lab – CECOS (Peshawar) & FAST NU (Islamabad); Video Surveillance Lab – PNEC-NUST (Karachi) & FAST NU (Karachi); Sustainable Energy Informatics Lab – LUMS; Predictive Analytics Lab – SZABIST (Karachi & Islamabad); Precision Agriculture and Analytics Lab – UAF (Faisalabad); Crime Investigation and Prevention Lab – ITU (Lahore); Data Acquisition, Processing & Predictive Analytics – Ziauddin University (Karachi) and Data Analytics Lab – UET Peshawar.

"Our entire wealth is our youth. We are grateful to the government for recognising the potential LUMS possesses to provide the right environment and opportunities to them to explore their potential."
Dr. Naqvi



30TH CONVOCATION CEREMONY OF LAHORE UNIVERSITY OF MANAGEMENT SCIENCES – CLASS OF 2018

The 30th Convocation ceremony of the Lahore University of Management Sciences (LUMS) was held on Saturday, June 30, 2018, where the University graduated its largest batch to date. The ceremony presented a reunion of the entire University, with over 1000 graduating students, their parents, staff and faculty from each school gathered to commemorate the achievement of the Class of 2018. 849 Undergraduate and 252 Graduates were honoured with degrees from all the Schools at LUMS and high achievers received medals and awards. The year also marked the graduation of 9 Doctorate Graduates, making it the highest number in the history of LUMS.

Prof. Dr. S. Sohail H. Naqvi, Vice Chancellor, presiding over his last convocation at LUMS, welcomed parents, students, the management committee members, trustees and the keynote speaker, Dr. Ishrat Hussain at the Convocation ceremony. In his welcome address, he congratulated the graduating class and said that the youth has always been the instigator of social change.

our academia to take on the challenging role of service to its student communities providing quality education and competitive environments to realise professional learning objectives on the road to a future that ensures the well-being of Pakistan's economy. And I can confidently say that LUMS continuously and significantly supports this objective."

Chief guest of the ceremony, Dr. Ishrat Hussain motivated the batch to pursue their leadership goals, while embodying empathy and authenticity. He said, "I have always held complete faith in our institutions, our processes and the competence of

Rector LUMS, Abdul Razak Dawood also addressed the convocation. He thanked Prof. Dr. S. Sohail H. Naqvi for his endless efforts during his tenure in making LUMS a world-class institute and shared his best wishes for his future endeavours.

SBASSE— MEDALS AND AWARDS

A large number of SBASSE students' batch - 2018, received medals and awards as high achievers. The effort put in by both, faculty and students paid off in flying colours.

Graduate Programs - NMF Gold Medals

1st Position - MS Biology

Ghazia Abbas

1st Position - MS Electrical Engineering

Aamir Hussain Chughtai

1st Position - MS Mathematics

Aftab Ali

Graduate Programs –Dean Honor's Roll

MS Biology – 2

MS Chemistry – 3

MS Computer Sciences – 2

MS Electrical Engineering – 8

MS Mathematics – 1

MS Physics – 1

Undergraduate Programs – NMF Gold Medals

1st Position - Biology

Leena Abdullah

1st Position - Computer Science

Syed Muhammad Ahmad Tirmazi

1st Position - Electrical Engineering

Sayed Saad Afzal

1st Position - Mathematics

M. Mohibullah Khan Shirazi

Syed Zahoor Hassan Medal - Best NOP Scholar Ifrah Idrees

Undergraduate Programs – Awards

BS Biology

Award of Highest Distinction – 3

Award of Distinction – 4

BS Chemistry

Award of Highest Distinction – 0

Award of Distinction – 1

BS Computer Sciences

Award of Highest Distinction – 5

Award of Distinction – 7

BS Electrical Engineering

Award of Highest Distinction – 5

Award of Distinction – 4

BS Mathematics

Award of Highest Distinction – 2

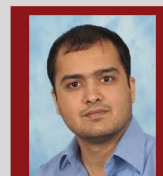
Award of Distinction – 1

BS Physics

Award of Highest Distinction – 0

Award of Distinction – 2

9 PHD STUDENTS GRADUATED FROM SBASSE - HIGHEST NUMBER EVER



Dr. Talha Manzoor
PhD in Electrical Engineering



Dr. Ayesha Afzal
PhD in Computer Science



Dr. Amir Zaheer
PhD in Computer Science



Dr. Shazia Mumtaz
PhD in Chemistry



Dr. Tariq Shamim Khawaja
PhD in Electrical Engineering



Dr. Khawaja Fahad
PhD in Computer Science



Dr. Kamran Nishat
PhD in Computer Science



Dr. Jawwad Nasar Chattha
PhD in Electrical Engineering



Dr. Mashood Nasir
PhD in Electrical Engineering

HEALTH AND WELLNESS CENTRE INAUGURATED AT LUMS

On Thursday, March 29, 2018, Prof. Dr. S. Sohail H. Naqvi on behalf of LUMS signed an MOU with National Hospital and Medical Centre (NHMC) to develop and operate a 'Health and Wellness Centre' on the University's premises for the provision of Emergency Medical Services to all members of the LUMS Community.

Within three months of the MoU being signed, the Health and Wellness Centre has been inaugurated today Wednesday, June 27, 2018 and is now fully operational to the entire LUMS community. The inauguration was attended by important members from LUMS among them being Vice Chancellor, Prof. Dr. S. Sohail H. Naqvi; Chief Operating Officer, Ms. Nabiha Shah Nawaz; Dean of Syed Babar Ali School of Science and Engineering, Dr. Shahid Masud; Head of Finance and Accounts, Zunair Zafar; Senior Manager Procurement, Muhammad Iqbal; Head of Human Resources, Asif Iqbal and Director General Administration and Services, Muhammad Amer Khan Durrani.

The Centre was inaugurated by Dr. Shahida Khawaja, CEO NHMC. At the ceremony, Dr. Khawaja spoke about the absolute need to have quick and effective treatment on the premises. She said, "All the basic facilities for urgent care are present on spot for the entire LUMS community."

Talking about the importance of the Centre, Dr. Naqvi said, "It was imperative for the LUMS family to have a Health and Wellness Centre for emergency cases. There will be ambulances available to take more serious cases to the National Hospital. The Centre will, especially be important for preventive campaigns to take better care of the students."

NHMC will offer a state-of-the-art medical care facility to the LUMS Community and will also ensure the operations and management of the Centre. The Centre will cater to all first aid medical situations on campus, while those that require further treatment or diagnosis will be referred to NHMC. The facility is planned to be active 24 hours, 7 days a week,

including all national holidays. The Centre will comprise of a doctor and two staff members, beds for patients, basic emergency equipment, basic medicines and an active ambulance service.



SENIOR YEAR DESIGN PROJECTS OPEN HOUSE 2018

The Electrical Engineering (EE) program at SBASSE has been designed to enable students to contribute to the rapidly changing and expanding needs of technology. In the final year of undergraduate studies, students undertake a year-long capstone project to demonstrate their practical knowledge. The Department of Electrical Engineering held its annual Senior Year Design Project Open House on May 04, 2018 to showcase final year projects. The venue for the event was the labs of the EE Department, 2nd floor Syed Babar Ali School of Sciences and Engineering between 8:30 am to 12:30 pm. The Open House was coordinated by Dr. Ahmad Kamal Nasir and Dr. Adeel Pasha with the able support of Mr. Affan Anwar and Engr. Uzair Ahmed. The Department invited professionals from industry and colleagues from other universities. They appreciated and encouraged the students on their efforts and provided feedback on their projects.



ACHIEVEMENTS

GOOGLE FACULTY RESEARCH AWARD WON BY DR. IHSAN QAZI AND DR. ZAFAR QAZI

Dr. Ihsan Ayyub Qazi, Chair and Associate Professor of Computer Science at Syed Babar Ali School of Science and Engineering (SBASSE), LUMS, and Dr. Zafar Ayyub Qazi, Assistant Professor of Computer Science at SBASSE, LUMS, have won the highly prestigious and competitive Google Faculty Research Award for their proposal on designing technologies for making the Web faster for the next billion Internet users in developing countries.

As part of their project, they will build technologies to improve web performance on slow devices and networks, which are widely prevalent in developing countries. The proposed research can have a long-term impact on how users in the developing world experience the web.

Google Faculty Research Awards are one-year awards structured as unrestricted gifts to support the research of world-class faculty members at top universities around the world pursuing cutting edge research in areas of mutual interest. In addition, the award provides both faculty and students the opportunity to work directly with Google researchers and engineers. These awards are highly competitive

– only 15% of applicants receive funding – and each proposal goes through a rigorous Google-Wide review process. Last year, Google received 1033 proposals covering 46 countries and over 360 universities. After expert reviews and committee discussions, Google decided to fund only 152 projects. Generally, less than 5% of funded proposals are from outside the US. It is a big honour for the two Professors, LUMS and Pakistan to have received this award.

Commenting on the research focus at LUMS and its impact on their work, Dr. Ihsan said, “LUMS provides a vibrant environment for carrying out research. It has all the ingredients of a world-class University, which includes outstanding faculty, excellent students, highly supportive staff and administration, and a great working environment. The sustained focus on research at LUMS played an important role in inspiring our work.”

Winning this prestigious Google Faculty Research Award is a big achievement. LUMS is proud of both Dr. Ihsan and Dr. Zafar and wishes them the best of luck for future endeavours.



FIRST SMART WHEELCHAIR OF PAKISTAN INVENTED BY MS ELECTRICAL ENGINEERING STUDENT

A student of MS Electrical Engineering, Syed Babar Ali School of Science and Engineering at LUMS, Faaiz Arbab, has manufactured Pakistan’s first smart wheelchair called GOBEE. National Design Awards (NDA) Pakistan has been awarded to Faaiz Arbab along with the best Consumer Product Design Award (2018) for his Voice Operated Smart Wheel Chair.

GOBEE is not only water repellent, and anti-rusting, but also has alloy rim wheels combined with an anti-sweat technology sofa seat. Arbab aims to assist people with disabilities through technology. The smart wheelchair offers Bluetooth, Wi-Fi, and a remote control which goes over the range of a 100 feet.

The young student being the founder of Ayub Yaqoob Engineering Company (AYECo) has already started distributing GOBEE in the Pakistani market. In future, the product may also be exported after its compliance with International Health Regulations (IHR) of World Health Organization (WHO).



DR. ABUBAKAR MUHAMMAD

SPEAKS AT JOHNS HOPKINS UNIVERSITY & UNIVERSITY OF UTAH

Dr. Abubakar Muhammad, Associate Professor, Department of Electrical Engineering, visited two American campuses, Johns Hopkins University, Washington, D.C. and University of Utah, Salt Lake City in April, 2018 to talk about his work at the Center for Water Informatics & Technology at LUMS. The Johns Hopkins School of Advanced International Studies and LUMS jointly organised a conference in Washington, D.C. that brought together leading scholars and policy experts to explore the

dynamics that are likely to shape Pakistan's political stability, its economic progress, and its relationship with the neighboring countries and the United States.

Dr. Abubakar Muhammad was part of a panel discussion on "Pakistan's Economic Futures: Stability and Innovation" and emphasised that water is at the heart of all of Pakistan's developmental challenges. He was joined by SBASSE advisory board member, Dr. Mehmood Khan along with Dr. Imtiaz ul Haq,

Dr. Hassan Abbas Khan (SBASSE) and Dr. Johannes Urpelainen.

Following this, Dr. Abubakar visited University of Utah's Center for Water, where he gave a seminar talk and met a number of UU engineering faculty to discuss avenues of research collaboration. Dr. Abubakar also screened a WIT documentary, "River Garden" for UU students and faculty. The visit was hosted by Dr. Steve Burian and Dr. Tariq Banuri.



OUR SWIMMING PLAYER ACHIEVEMENT

Our Sophomore Computer Science student from SBASSE, Muhammad Abubakar Usman competed with some of the most talented swimmers in Pakistan while participating in the 4th Inter-Provincial Games held in Peshawar from March 18-21, 2018. He won the bronze medal in the 100m breaststroke event with the time of 1 minute and 20 seconds.

We believe that with commitment and desire to stay fit, both physically and mentally and with a healthy dose of competitiveness, our students will excel and go far down the road of personal achievements and set themselves as fine examples to the rest of our community.



WATER INFORMATICS & TECHNOLOGY (WIT)

AWARDED WITH BOTH INTERNATIONAL & LOCAL RESEARCH GRANTS

Center for Water Informatics & Technology (WIT) and The Food and Agriculture Organisation of the United Nations (FAO-UN) have joined hands for the preparation of provincial agriculture disaster risk management operations for Sindh and Punjab provinces. Economics faculty, Dr. Sanval Nasim, Dr. Saher Asad and WIT senior researchers, Dr. Mahmood Ahmad, Dr. Asif Khan, and Dr. Abubakr Muhammad will lead the project. In a significant development, Dr. Abubakr Muhammad has won a Rs 100 million grant from HEC to establish a "National Agricultural Robotics Lab" to work in the areas of irrigation efficiency, precision agriculture and environmental monitoring. He is supported by SBASSE faculty, Dr. Ahmad Kamal, Dr. Mian Awais & Dr. Murtaza Taj.

Another recognition of WIT's work by HEC has come in the form of a research grant on the use of Air Quality Measurements and Land-Atmosphere Models to support the development of winter smog mitigation strategies. WIT senior researcher Dr. Maudood Khan is leading the project with WIT Director, Dr. Abubakr Muhammad. Both are member of the Smog Commission set up by the Lahore High Court and working closely with the Punjab EPD. WIT has been commissioned by the Global Change Impact Studies Center (GCISC) in Islamabad to develop a study on climate informatics and elaborate the utility of setting up hydrological sensor networks. Meanwhile, Nestle-Pakistan has renewed its partnership with WIT for three consecutive year,

to scale-up soil moisture sensing technologies for water-smart agriculture. Additionally, a team of researchers from WIT, University of Utah, Mehran University and Sindh Irrigation & Drainage Authority (SIDA) have been awarded a joint grant by USPCAS-W for closed-loop monitoring of canal irrigation. WIT will be deploying water sensor systems and help its partners in novel hydrological models for water managements. These grants are supporting a number of senior researchers, faculty associates, graduate students and full-time staff at WIT to push the frontiers of high-impact water research in socio-hydrology, water economics and water informatics.

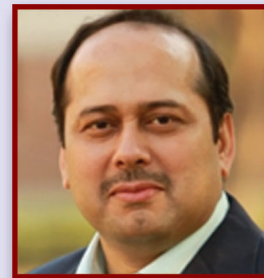
RESEARCH PAPER BY FACULTY OF DEPARTMENT OF CHEMISTRY ACCEPTED FOR PUBLICATION IN A LEADING JOURNAL

A paper with the topic "Photocatalytic Degradation of Imidacloprid by Ag-ZnO Composite" has been accepted for publication in journal "Environmental Science and Pollution Research." The project was funded by Center for Water Informatics & Technology (WIT), LUMS. Authors of the paper were, Dr. Ghayoor Abbas Chotana, Assistant Professor, Department of Chemistry and Chemical Engineering, Dr. Saadia Rashid Tariq, Associate Professor, Lahore College for Women University and Mahwish Kanwal, Research Associate, from Department of Chemistry & Chemical Engineering.

The study focused on exploring the potential of Ag-ZnO composites for complete mineralisation of imidacloprid with the aim to sustain the pollutant free safe water supply. The composites were prepared by hydrothermal method and characterised

by Scanning Electron Microscope (SEM), Energy Dispersive X-ray Crystallography (EDX), X-ray Diffraction (XRD) and band gap measurements. These composites were used to study the UV irradiated degradation of imidacloprid while optimizing the process parameters, such as time of UV irradiation, pH of medium, pesticide concentration and composite loading.

The results of the study revealed an increase in photodegradation of imidacloprid by Ag-ZnO composites than pure ZnO. Temperature and catalyst loading had a positive effect on degradation efficiency, while an inverse relation was observed between pesticide concentration and degradation. Moreover, no harmful degradation products of imidacloprid were observed in GC-MS analysis that confirmed its complete mineralization.



FACULTY OF DEPARTMENT OF ELECTRICAL ENGINEERING'S WORK HAS BEEN ACCEPTED FOR PUBLICATION IN IEEE TRANSACTIONS

Dr. Muhammad Tahir is Assistant Professor in Department of Electrical Engineering, his work has been accepted for publication as a regular paper in

IEEE Transactions on Intelligent Transportation System. All of the work is performed in SBASSE with his undergraduate students, Syed Saad Afzal and

Muhammad Saad Chughtai. The paper will be published in IEEE Xplore edition and the print edition of the Transactions.

WORKSHOP CONDUCTED ON SPATIO-TEMPORAL CELLULAR NETWORK HEALTH ESTIMATION

A workshop on Spatio-Temporal Cellular Network Health Estimation was held on May 10, 2018 at SBASSE. The idea was to share the research and development carried out at LUMS for an Iginite funded project (formerly ICT R&D Fund) where Dr. Ijaz Haider Naqvi, Assistant Professor at Department of Electrical Engineering, is Principal Investigator.

The workshop presented work on cellular network health estimation with the relevant industry people and the representatives of the regulatory authorities. There was considerable participation from the industry representatives of Zong, Telenor, PTCL, ZTE and Ebryx. In addition, 5 representatives of PTA also participated in the workshop.

The developed solution was presented to the audience followed by the demonstration. The developed solution enables a collection of network parameters along with spatio-temporal distributions of the users. Thereafter, the prediction analysis is carried out using a variety of machine learning techniques for all radio access technologies in Pakistan; GSM, UMTS and LTE. The workshop further demonstrated spatial and statistical visualization for different network scenarios for instance, coverage hole detection and signal strength heat maps.

The work was appreciated by the people of the industry present at the workshop as well as the representatives of the regulatory authorities. The feedback of the participants was also encouraging for the people involved with the entire workshop.



SBASSE ORGANISED A LAB SAFETY WORKSHOP FOR STUDENTS AND TECHNICAL STAFF MEMBERS

It is of paramount importance to thrive towards and promote a culture of safety at the workplace. The Syed Babar Ali School of Science and Engineering (SBASSE) organises numerous training workshops to achieve absolute certainty in regards to safety. One such workshop was organised on April 20, 2018 in collaboration with OSALP. The workshop covered various aspects of lab safety, hazard identification and control. It also introduced the participants to the new Globally Harmonized System (GHS) for the identification of chemicals and life-saving rules while providing first aid, fire prevention, mitigation and evacuation education.

The workshop was attended by both students and staff members of the School.



WORKSHOP ORGANISED ON IDENTIFYING WATER, ENERGY AND LAND NEXUS CHALLENGES IN THE INDUS BASIN

The Centre for Water Informatics and Technology from Lahore University of Management Sciences (WIT-LUMS), and the International Institute for Applied Systems Analysis (IIASA) based in Austria co-hosted a workshop on "Identifying Water, Energy and Land Nexus Challenges in the Indus Basin" in order to exchange experience and seek stakeholder guidance on identifying priority issues related to cross-sectoral and transboundary cooperation in the areas of water, energy, and land in the Indus basin. This workshop was part of a larger stakeholder engagement process that is being undertaken within the "Integrated Solutions for Water, Energy, and Land (ISWEL) project," led by IIASA in partnership with the Global Environment Facility (GEF) and the United Nations Industrial Development Organisation (UNIDO).

Dr. Simon Langan from International Institute for Applied Systems Analysis (IIASA) started the proceedings with the introduction of Integrated Solutions for Water, Energy, and Land (ISWEL) project. He talked about the main goal of ISWEL project which is to assess cost-effective solutions to meet future water, energy and lands demands under a number of different socio-economic and hydro-climatic pathways. While ISWEL takes a global approach, it also zooms into two transboundary basins facing important development and environmental challenges: Indus and the Zambezi. High level officials from government, industries and private sectors participated in the event.



WORKSHOP ORGANISED ON OPTIMISING USAGE OF ENERGY RESOURCES IN PAKISTAN

The Energy and Power Systems Cluster at Dept. of Electrical Engineering, SBASSE, LUMS conducted a workshop on “Optimising Usage of Energy Resources in Pakistan” to promote energy efficiency activities in the country on April 13-14, 2018. The workshop was organised in collaboration with Punjab Energy Efficiency and Conservation Authority (PEECA).

Dr. Shahid Masud, Dean Syed Babar Ali School of Science & Engineering, gave the welcome address. During his address, he appreciated the efforts of the organisers and emphasised on the importance of energy conservation systems in relation to energy crises in Pakistan.

Following Dean SBASSE, Mr. Abdur Rehman, Manager Operations PEECA talked about degradation of energy that is not only affecting the electricity but also affecting the economy. He also highlighted the lack of communication between academia, industry and government, for taking valuable steps.

Professor Nauman Zafar and Dr. Naveed Arshad from LUMS talked about Energy Efficient Technologies and Role of Energy Informatics for Minimizing Grid Loads respectively. Mr. Mashood Nasir from LUMS, Dr. Tauseef Tauqeer from Information Technology University and Waqas Moosa from Hadron Solar gave talks regarding industry academia partnership for energy conservation, rural electrification through solar and solar power pumping. An extensively informative session was conducted and concluded with a panel discussion, in which the honorable panelists discussed how awareness among the masses is vital.

All of the speakers to the session underlined the role of the government in order to implement the energy efficient programmes. Providing funding for such programmes will help to create awareness among the public and it will also lead to create expertise of renewable energy equipment in this sector. At the end, Panel discussion was made on policymaking

and implementation of energy efficiency and conservation codes.

The event was concluded with encouraging remarks by Chief Guest Mr. Almas Hyder, Chairman Synthetic Products Enterprises Limited (SPEL), who shared his own experience in energy and power sector.



DEPARTMENT OF BIOLOGY IN COLLABORATION WITH SiDER ORGANISED DIABETES DAY

Department of Biology in collaboration with Sakina Institute of Diabetes and Endocrinology Research (SiDER)-Shalamar Hospital Lahore organised a Diabetes day at LUMS on Thursday, April 26, 2018.

The purpose of the activity was to develop awareness regarding diabetes which affects approximately 7 million Pakistanis (Every fourth Pakistani has diabetes). The activities were facilitated by SiDER Diabetes Mobile, which came to LUMS accompanied by a Diabetologist, an endocrinologist and a general medicine physician who performed glucose testing and answered the questions of visitors. To spread awareness on the topic an opening lecture was delivered by Dr. Bilal Bin Yunus, the Chief Diabetologist and Director SiDER, highlighted few facts regarding morbidity and mortality associated with diabetes.



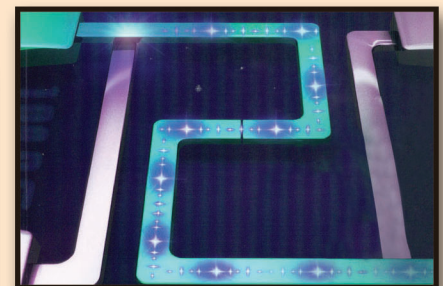
DEPARTMENT OF PHYSICS ORGANISED A SYMPOSIUM ON QUANTUM AND NANO-OPTICS

Department of Physics organised a Symposium on Quantum and Nano-Optics on April 12, 2018. This event provided a platform for guest speakers and LUMS faculty to exchange ideas on their current research in the areas of optics, quantum information and condensed matter through a series of talks.

International scholars participated in the event and share accounts on scintillating, cutting edge research on quantum optics, nano-optics and laser.

Following leading experts from across the globe participated in the event:

- Dr. Shi-Yao Zhu, Zhejiang University, China
- Dr. Ligang Wang, Zhejiang University, China, Wolf Effect of Light in Two-Dimensional Curved Space
- Dr. Jun Jing, Zhejiang University, China
- Dr. Jian Zi, Fudan University, China
- Dr. Suhail Zubairy, Texas A&M, USA
- Dr. Imran Cheema, LUMS, Towards Rapid and Portable Optical Sensors for Detecting Water and Milk Contamination
- Dr. Adam Zaman, LUMS
- Dr. Ata ul Haq, LUMS, Magneto-Optical control of Mesoscopic Spin Bath
- Dr. Ammar Ahmed Khan, LUMS, Liquid Crystal Lasers: Photonic Band-Edge and Multiple Scattering-Based Random Lasers
- Dr. Muhammad Faryad, LUMS, Zero Index Metamaterials Using Photonic Crystals
- Dr. Muhammad Sabieh Anwar, LUMS
- Muzammil Shah, LUMS, Magneto-Optics of 2D materials



QUALITY ASSURANCE NEWS PEC ZERO VISIT

Pakistan Engineering Council (PEC) visiting team conducted 'Zero Visit' for BS Chemical Engineering programme of SBASSE, LUMS on June 29, 2018. The PEC visiting team started their visit by meeting Dr. Sohail H. Naqvi, Vice Chancellor LUMS and Prof. Shahid Masud, Dean SBASSE, who welcomed the guests and gave brief overview about LUMS.

Department of Chemistry and Chemical Engineering representatives took PEC visiting team for campus tour and also showed the relevant capabilities required for the programme. The visiting team shared their satisfaction over the facilities available for the Chemical Engineering programme and appreciated the hospitality extended by the host.



STUDENT NEWS INTERNATIONAL PLACEMENTS

- MS Computer Science student, Rubab Zahra has been selected for the European Organisation for Nuclear Research known as CERN's Openlab Summer Student Programme 2018. Only 39 students have been selected out of 1820 applicants worldwide. She will be working on the research project titled 'Containerized CEPH Deployment' for nine weeks in Geneva, Switzerland.

- Umar Farooq, LUMS BS Computer Science student has received a fully-funded scholarship from the University of Illinois Urbana Champaign (UIUC) to pursue his Master's in the University's prestigious Computer Science Programme. Additionally, he has also received fully-funded admission offers from the University of Wisconsin, University of Texas, University of Maryland and North Eastern University.

- Muhammad Ahmad Tirmazi, a student of BS Computer Science 2018 at the LUMS Syed Babar Ali School of Science and Engineering (SBASSE) will be

joining Harvard University in Fall 2018. He will be starting a fully-funded PhD in Computer Science at the Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS).

- BS Chemistry students at the LUMS Syed Babar Ali School of Science and Engineering (SBASSE) have secured multiple placements in world-class fully-funded graduate programmes. Sarah Nawaz, Fatima Hameed, Nabeel Mujtaba Abbasi and Eman, received admission offers in PhD programmes of the following top-notch universities in the USA: Texas A & M, University of Massachusetts, Amherst, Indiana University, Bloomington, Georgetown University, University of South Carolina, University at Buffalo (State University of New York), Rensselaer Polytechnic Institute (RPI), University of Kansas, Wayne State University and Iowa State University.

- Waseem Afzaal, a student of Department of Chemistry, adds another chapter to the success

stories of Chemistry graduates from the University. He defended his MS thesis during Spring semester and has already received a fully-funded admission offer from the Department of Chemistry at Florida State University (FSU) in the United States of America.

- Ansir Ilyas is a first-year PhD student at Syed Babar Ali School of Science and Engineering, Lahore University of Management Sciences (SBASSE-LUMS), Lahore. He has been selected to participate in International Institute for Applied Systems Analysis IIASA's 2018 Young Scientists Summer Program in Austria. He is pursuing his PhD research under the supervision of Dr. Abubakr Muhammad, Electrical Engineering Department on the topic of "Distributed Optimal Control of a Nexus of Socio-Ecological Systems."



FACULTY NEWS FACULTY PROMOTION

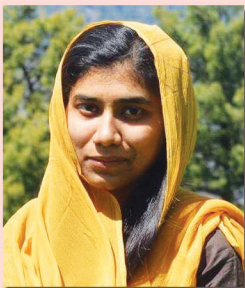


• Dr. Adnan Khan has been promoted to Associate Professor with Tenure in the Department of Mathematics.

WELCOME ON BOARD



• Dr. Ali Rauf has joined as Assistant Professor on Tenure Track in the Department of Chemistry and Chemical Engineering.



• Zobia Ijaz has joined as Teaching Fellow in the Department of Chemistry and Chemical Engineering.



• Abdul Wahab has joined as Teaching Fellow in the Department of Chemistry and Chemical Engineering.



• Hafiz Muhammad Afzal has joined as Teaching Fellow in the Department of Chemistry and Chemical Engineering.

FACULTY ON SABBATICAL



• Dr. Zartash Afzal Uzmi, Associate Professor of Department of Electrical Engineering, took his sabbatical for year 2018 to conduct extensive research work on '*Internet censorship measurement*' in collaboration with University of Cambridge and University of Berkeley.

STAFF NEWS

• Mr. Muhammad Asif has joined as Lab Technician in the Department of Chemistry & Chemical Engineering.

• Haji Muhammad Akhter has left SBASSE Dean's office after contributing excellent work during 2008-2018. Office of the Dean, organised a farewell ceremony in the recognition of Haji Akhter's unforgettable services. During the ceremony, Dr. Shahid Masud, Dean SBASSE, presented Haji Akhter a souvenir shield.



STAFF DEVELOPMENT

SBASSE staff members successfully completed the nominated course from LUMS Lifetime Learning courses in May, 2018. Each member had a great learning experience at LLL. Prof. Shahid Masud, Dean SBASSE, has always encouraged the development of staff members that can increase productivity, adherence to quality standards and employee satisfaction.

- Ms. Uzma Baig – Graphics Design
- Mr. Affan Anwar – PR and Event Management
- Ms. Saira Naz – Graphics Design
- Mr. Bilal Khalid – English Language (Level 2)

ELECTRONICS AND EMBEDDED SYSTEMS LAB (EESL)

The Electronics and Embedded Systems Lab (EESL), is looked after by Dr. Muhammad Adeel Pasha, Director EESL. The faculty members who are associated with this Lab include, Prof. Shahid Masud, Dr. Jahangir Ikram, Dr. Awais Bin Altaf and Dr. Wala Saadeh.

The main focus of Electronics and Embedded Systems research cluster is to explore customised hardware, software and co-design solutions for embedded systems. The development of high-speed programmable DSP chips as well as re-configurable and programmable hardware has made it possible that many operations of conventional high performance and low power applications can be implemented in the form of re-usable Silicon IP-cores and associated software code. Different research threads that are actively being pursued at EESL include:

- Customised hardware, software and co-design solutions for embedded systems targeted at (but not limited to) Software Defined Radio (SDR) and Internet of Things (IoT).
 - Hardware-based algorithm acceleration in both compute-intensive systems (e.g. image/video applications) and control-intensive systems (e.g. device drivers and communication protocol stack).
 - Development of Electronic Design Automation (EDA) tools that convert programmes written in higher programming language like C, C++, SystemC or Matlab into hardware description languages, such as VHDL or Verilog HDL. The target platforms include, application specific integrated circuits (ASICs), FPGAs and coarse-grained reconfigurable architectures (CGRAs).
 - Development of embedded smart water meters for water telemetry and management solutions.
 - Development of analog and mixed signal circuits and systems targeted at bio-medical applications such as wearable and portable medical electronic systems for monitoring and imaging purposes.
- EESL Funded Research Projects:
Some of the recently funded projects awarded to EESL faculty include:
- Framework for High-level Power Estimation of

Embedded Soft-Core Processors (HEC)

- Automated Testbed for Spatially Distributed Wireless Real Time Monitoring System of Large Scale Waterways(DAAD)
- GreenComm: Toward Developing an Energy-Efficient Platform for IoT-enabled Devices (FIF)
- Indoor Positioning System using visible LED lights (FIF)
- Location Based Services (LBS) for Mobile Devices (Ignite)
- A Reconfigurable FPGA based System-on-Module (SoM) for Industrial Controls with IEEE 1588 IP Core Demonstrator (Ignite)
- Development of Patient-Specific ECG based Processor to predict Ventricular Arrhythmia (LUMS)
- An Infrared Sensor based Non-Contact Non-invasive Early Breast-Cancer Screening Device (FIF)
- A Portable Non-invasive Neuro Feedback Device to for the Early Detection of Autistic Children and their Cognitive/Emotional Development (FIF)
- Energy-Efficient Patient-Specific Sleep Classifier for Alzheimer Patients (FIF)
- Patient-Specific Area-and-Energy Efficient Wearable Continuous Gait Monitoring System (FIF)



Dr. Muhammad Adeel Pasha at an International Conference

ASSOCIATED FACULTY MEMBERS



Technical diagrams and specifications for a 140nm chip. The top left shows a block diagram of a Channel LBS system. The top right shows a block diagram of a Processing Block. The bottom left shows a photograph of the chip with a table of implementation results. The bottom right shows a photograph of the chip on a PCB.

Implementation Results	
Process	140nm CMOS
Area	0.8mm ²
Supply Voltage	1.1V
TX	0.877mW
RX	1.5mW
Clock Rate	0.2-20Mbps
Bandwidth	±5.1MHz
RX Noise Fig.	0.9dB
BER@ 20Mbps	10 ⁻⁷

ACADEMIC AFFAIRS OFFICE AT OFFICE OF THE DEAN SBASSE

Academic advisement is a relationship between advisor and student to support the student's educational and career success. Academic advisor provides guidance on academic policies and regulations, decision-making regarding course selection and refer to resources available on campus, offering academic and personal support.

Academic Affairs Office of SBASSE is unique in its functions as no other school at LUMS provides such opportunity to its students to have a platform where they have mandatory sessions with faculty advisors on semester/year basis to discuss their academic progress. The outcomes of these sessions are recorded in students' files and presented to the school Dean and other senior officials, when required. The Office also helps in resolving all types of problems ranging from academic to social issues, and creates a sense of belonging for the students at SBASSE which helps them to thrive while they share their day to day challenges at LUMS.

When a newly admitted student sets foot in LUMS, apart from coming into contact with a wide variety of academic as well as non-academic opportunities, he also experiences a number of challenges. For instance, the fierce competition that he faces while studying with the brightest of the students and the need to be able to cope with this pressure, the need to perform well enough to avoid going below the minimum GPA requirement and avoiding academic probation, the challenge to balance academics with extra-curricular activities and the 'cultural shock' that some of the students experience, especially those who come from a different socio-economic or academic background from that of LUMS, etc.

The Dean office at SBASSE understands these challenges that students face during their academic life, especially during the freshmen year and hence provides them with appropriate academic advisement from its highly qualified staff and esteemed faculty. The academic advisors are allotted to the students, right from their freshmen year, with whom the students can share any personal or academic problems that they might be facing. Once the students move to their sophomore year and have

declared their major, they would then be reassigned an advisor in their major for the remainder of their programme at SBASSE. It is a great way of helping them in defining their career plan and to give exposure to the opportunities that LUMS provides.

Academic Affairs team also helps in the areas mentioned below:

- Making course plans for students, guide them according to the proposed plan, making sure they fulfill graduation requirements with-in due time, Maintaining graduate student lists
- Helping students during Course Registration, Add/Drop period
- Providing support to students during school transfers, readmission and external transfer students' course plans
- Maintaining graduate student lists and files, Providing academic forms to graduate students and departments as necessary
- Providing assistance to the Office of Admissions regarding undergraduate & graduate admissions as required
- Processing and verifying GAFs (Graduation Audit Form) of students at the time of graduation

Academic Affairs Office, adheres to the guidelines of the University policies and values student centered advising that is built on care and respect for student as individuals.

TEAM ACADEMIC AFFAIRS OFFICE



Mr. Nouman Baig
Deputy Manager Student Affairs



Ms. Saira Naz
Senior Officer Student Affairs



Ms. Aleena Khan
Senior Officer Student Affairs



Ms. Ayesha Ikram
Officer Student Affairs

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