



# Khirad

Newsletter



Mr. Faheem Afsar, a PhD scholar from the Dept. of Physics and Applied Sciences defended his research work on the topic 'Development and characterization of gas and humidity sensors using metal sulphide nanostructures' at Teleconferencing Hall on January 08, 2020. In this work, liquid-solid phase reaction method was applied to synthesize SnS nanoflakes, Bi<sub>2</sub>S<sub>3</sub> nanobelts, PbS nanosheets, and MoS<sub>2</sub> nanoflakes. Ag<sub>2</sub>S nanoparticles were synthesized by co-precipitation method. These metal sulphide nanostructures were characterized by XRD, FESEM, EDS and TEM. More preferentially plane for each nanostructure was extracted by calculating the texture coefficient. Temperature dependent gas sensing properties for SnS nanoflakes sensors were studied. These sensors show short response/recovery time and enormous response with good recyclability and stability. SnS nanoflakes may be used for non-invasive diabetes diagnosis. He has published 9 research articles in ISI-indexed international journals.

Ms. Rukhsana Kouser, a PhD scholar from the Dept. of Physics and Applied Sciences defended her research work on the topic, "Radiative and thermodynamic properties of matter under Extreme conditions", at Teleconferencing Hall on August 12, 2020. The accurate modeling of radiative properties relies on the accuracy of the atomic parameters used in the opacity calculations. In this work, an average atom in self-consistent field approximation has been developed and is used for finding the electronic energies, shell occupation probabilities and average ionization of the plasma. The radiative properties are calculated in the framework of local thermodynamic equilibrium-LTE. The results show excellent agreement with experimental and other theoretical calculations at ambient pressure and are extended to region of high compressions. She has published 4 research articles in ISI-indexed international journals.



Ms. Attia Gul, a PhD scholar from the Dept. of Physics and Applied Sciences defended her research work on the topic, "Small field dosimetry for external beam radiation therapy, at Teleconferencing Hall on September 07, 2020. Her research studied different aspects of small field dosimetry for external beam radiation therapy (EBRT). Her work provides an insight into various aspects of small field dosimetry including the contribution of different parameters in skin dose. She is the first medical physics professional in Pakistan who had experience of working on carbon ion therapy facility at National Institute of Radiological Sciences (NIRS), Japan. She published 3 research articles on ISI-indexed journals and is the first PhD in Medical Physics since its inception in 2015.

Mr. Rashid Mahmood, a PhD candidate from the Department of Physics and Applied Sciences defended his research work on the topic, "In-vitro evaluation of vitamins mediated chemo-photodynamic therapy" at Teleconferencing Hall on September 08, 2020. In this study, lipophilic vitamins were evaluated for their in-vitro anti-cancer activity based on optimal uptake time by cancer cells, cytotoxicity, and phototoxicity analysis. These vitamins were investigated in combination with chemotherapy and photodynamic therapy. Synergistic, additive or antagonistic modes of interaction were analyzed for each combinational therapy. In-vitro morphological changes were assisted with different assays and techniques. He published 4 research articles in ISI-indexed international journals.



## PIEAS Welcomes BS Session 2020-4

The orientation program is designed to facilitate new students in understanding the programs, culture, norms, policies, and expectations. PIEAS welcomes the best and brightest students to help us fulfill our academic mission. On September 21, 2020, an orientation session was held in Inam ur Rahman Auditorium for the newly enrolled undergraduate students of batch 2020. Social arrangements were made in wake of covid-19 outbreak. Every year, PIEAS invites the newly admitted class to visit campus, explore student activities and clubs, and interact with the leadership and the faculty. Pro-Rector PIEAS, Dr. Mansoor H. Inayat welcomed the students on the behalf of Institute, faculty and staff. He deliberated upon the mission, history and traditions of the university, its achievements, and its expectations. He urged that the young generation should acquire quality education in order to become better citizens of tomorrow. They have to develop different talents to serve towards their nation's progress. Deans, Heads of departments and support divisions gave an insight to the academic and research activities being carried out at their respective departments. Students were introduced to campus traditions, academic and co-curricular activities, rules and regulations and were provided guidance to campus facilities and support services like learning management system, residential services, sports and recreational activities, library resources and computational and internet services. Students, arranged in small cohorts and headed by the orientation guides, also visited different department and divisions to familiarize students with the campus environment, physical infrastructure, facilities and services.



## Breast Cancer Awareness Walk



Cancer is one of the leading causes of death worldwide and the most common cancer in females. Pakistan alone has the highest rate of Breast Cancer than any other Asian country as approximately 90000 new cases are diagnosed every year out of which 40000 die. According to a research conducted approximately 1 out of every 9 women are likely to suffer from this disease at any point in their lives. Breast cancer is curable if diagnosed early. October is the month of Breast cancer awareness, in this regard DMS, PIEAS is organizing a seminar for ladies only. Oncologists from NORI are invited to give talks pertaining to the general awareness about breast cancer.

## PIEAS Launches Learning Management Portal and Conducts Online Assessment



In wake of covid-19 pandemic and subsequent closure of campus, PIEAS launched its learning management portal on March 24, 2020 and successfully conducted complete spring semester. With embargo on entry to campus and a few technical hands available, every effort was made to put all technological provisions in place and in prior. To facilitate online instruction, LMS was integrated with MS Teams. LMS portal registered 240 courses

and provided support to five institutes, 189 faculty members, and 1163 students. For the entire semester, 24/7 technical and administrative support was provided to geographically dispersed faculty and students. Learning resource in the form of lecture slides, lecture videos, and online assessment was uploaded on the LMS portal and it was 24/7 available. Learning material was electronically distributed where technological barriers existed.

## International Symposium on Recent Advances in Electrical Engineering and Computer Science



International Symposium on Recent Advances in Electrical Engineering & Computer Sciences 2020 (IEEE RAEE & CS' 20) was organized by the Department of Electrical Engineering (DEE) and Department of Computer and Information Sciences (DCIS), Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad on October 20-22, 2020. IEEE RAEE & CS'20 is an annual event under the umbrella of International Symposia 2020 and the 4th of its series. The main objective of this flagship event was to provide a platform for leading researchers from academia and practitioners from the industry in Pakistan and abroad to share their innovative ideas, experiences, and cutting-edge research. This year the symposium was held virtually on MS Teams due to COVID-19.

IEEE RAEE & CS' 20 especially focused on the tracks in the areas of Electrical Engineering and Computer Science. A diverse technical program committee was formed for ensuring various leading research areas in Electrical Engineering. The committee is comprised of experts in Electrical Engineering from different countries of the world. Due to quality and consistency, this symposium has gained popularity not only in Pakistan but also in different parts of the world. We received technical papers from different countries which were 65 in number. To maintain

quality, each paper was assigned to at least three reviewers by keeping the information single-blind. After a strict review process, 29 papers were accepted for publication.

During the technical sessions, keynote speakers from national and international universities delivered technical talks. The third day of IEEE RAEE & CS'20 was dedicated to Control Engineering activities, aiming to bring together the international community of systems and control to discuss the latest findings and advances in control theories and technologies and their applications in various fields. The conference proceedings are submitted for publication in IEEE Xplore.

PIEAS strives for excellence in teaching, research, and application of research to support the socio-economic development and welfare of mankind. Hosting the International Symposia is a manifestation of commitment of PIEAS to promote research and research culture in the country. International Symposium on Recent Advances in Electrical Engineering & Computer Sciences (RAEE&CS) is the result of tremendous efforts of the Organizing Committee. The International Symposia has been made possible with the generous support of our sponsors: Pakistan Atomic Energy Commission and IEEE Islamabad Section.

