



VIT-AP
UNIVERSITY

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Department of Physics
School of Advanced Sciences

NATIONAL WORKSHOP ON RECENT TRENDS AND OPPORTUNITIES IN PHYSICS (ONLINE)

Level-I: 10th April 2021 (Saturday)

Level-II: 17th April 2021 (Saturday)

ENTRY FREE

**E-Certificate
for participation**

<https://tinyurl.com/cb88fva5>
E-mail: phy.workshop@vitap.ac.in

LEVEL-I: This level of the workshop focuses on undergraduate students. It is intended to provide the participants with an outlook towards prospects in frontline research and physics-based industry positions. Participants would have the opportunity to interact with experts across academia, national organizations, and industry.

LEVEL-II: This level of the workshop focuses on postgraduate students. It is intended to provide the participants with an overview of current research and challenges in material physics. Participants would have the opportunity to interact with research experts from premier national institutes.

Speakers for LEVEL I: Novel Approaches and Opportunities in Physics (10th April 2021)

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Session - 1



Dr. K. Veera Brahmam

Topic : The Role of Physics in New Technologies and Opportunities in Defense Sector
Scientist, Advanced System Laboratory,
DRDO, Hyderabad



Dr. Joyee Ghosh

Topic : Quantum Technologies with Photons
Assistant Professor, Department of Physics,
IIT-Delhi, Delhi

Session - 2



Dr. Rahul Kumar Sharma

Topic : Exciting Opportunities in Space Technology
Scientist, Semi-Conductor Laboratory,
Department of Space, ISRO, Chandigarh



Mr. Vijay Shirgurkar

Topic : Present and Future Solar Energy Trends in India
Director, PV Energy Expert, Pune

Speakers for LEVEL II: Physics of Advanced Materials (17th April 2021)

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Session - 1



Dr. Ravi Kumar N.V

Topic : Diffraction & Spectroscopy Techniques
Professor, Department of Metallurgical
and Materials Engineering, IIT Madras, Madras



Dr. Chandra Sekhar Tiwary

Topic : 2D materials: Opportunities and Challenges
Assistant Professor, Department of Metallurgical
and Materials Engineering, IIT Kharagpur, Kharagpur

Session - 2



Dr. Koteswara Rao Bommisetti

Topic : Exotic Properties of Geometrically Frustrated Magnetic Systems
Assistant Professor, Department of Physics,
IIT Tirupati



Dr. K. Chandra Sekhar

Topic : Ferroelectric Materials and their Applications in Modern Electronic Devices
Assistant Professor, Department of Physics,
Central University of Tamil Nadu, Neelakudi, Thiruvavur, Tamil Nadu

Chair Person : Dr. Santanu Mandal, Dean, SAS

Convenor: Dr. N. Madhusudhana Rao, HOD, Department of Physics

**Organizing Committee: Prof. V.R.K Murthy (Professor Emeritus), Dr. Anita Sagadevan Ethiraj,
Dr. S. Roopas Kiran, Dr. SK. Khadheer Pasha, Dr. Debajit Goswami, Dr. B. Manmadha Rao,
Dr. J. Sudagar, Dr. Lakshmi Sowjanya Pali, Dr. Nandam Ashok**

E-mail : phy.workshop@vitap.ac.in



About Our University:

Consistently ranked among the top educational institutes in the country, the VIT group of institutions have had a proud tradition of pursuing knowledge and excellence. In keeping with this VIT tradition, the leadership at VIT-AP resonates a dynamic blend of academic initiative and industry partnership with a vision of creating one of the finest academic destinations in the world. With several years of educational, industrial, and administrative experience, VIT-AP is helmed by Dr. G. Viswanathan, Chancellor, founder of VIT group of institutions; along with the core group comprising Dr. Sekar Viswanathan, Vice-President; Dr. Sandhya Pentareddy, Executive Director; Dr. S. V. Kota Reddy, Vice-Chancellor; and Dr. C.L.V. Sivakumar, Registrar.

VIT-AP, offers several avenues to explore your interests, identify core competencies, and engage in an evolving lifecycle of education and growth. With flexible courses and a unique teaching-learning experience, state-of-the-art facilities, focus on continuous assessment and emphasis on practical learning, a student-oriented mentoring scheme, extra-curricular activities, several international collaborations, placement opportunities and much more, VIT-AP ensures that students are informed, inspired, and engaged in an enriching experience at the institute.

About Our School:

The School of Advanced Sciences (SAS) is one of the seven Schools of VIT-AP University and it houses the Departments of Mathematics, Physics, and Chemistry. Here students are taught how to think critically through project-based learning (PBL) and not merely what to think. Students are encouraged to question, explore, and research throughout their studies, ranging across the various discipline of sciences. Our school aims at providing a solid foundation in natural Sciences, projecting the recent scientific and technological developments to the graduate, postgraduate, and PhD students. We aspire to be a valuable contributor towards the nation's growth and development by producing highly skilled professionals and by engaging in cutting-edge research. SAS earnestly pursues a vision of providing local, regional, national and International leadership in the research and technology development. We believe in quality of education and research with ethical and professional standards for better tomorrow. Here, students make their choices based on their preferences and requirements that equips them with a balance of logical-thinking and problem-solving skills which are essential to tackle today & tomorrow's professional challenges.

Research:

Research is at the heart of SAS's vision towards becoming an internationally recognized center of knowledge and learning. The spectrum of research activities at SAS is extensive and distinct. Our faculty and scholars are keen not just to find technological solutions to problems but also to expand human knowledge and understanding. Currently, the school has over 20 Research Scholars pursuing a Ph.D. degree. The faculty members have contributed to academic research publishing and have successfully published research papers in over 85 journals and book chapters. SAS encourages faculties for collaborative research with faculties from foreign universities and presents their findings on international platforms.

The school has 23 registered faculties under the Research Grant in Engineering, Management, and Science (RGEMS), an initiative to motivate research that can lead to R&D projects. Undergraduate Research (URE) pursuits are encouraged by the school as well. In collaboration with the faculty, undergraduate students of engineering do active research, which leads to journal publications.



Programmes Offered:

Dual Degree Programme

B.Sc. & M.Sc. Data Science
(with exit option B.Sc. Data Science)

PG Programme

M. Sc. Data Science
M. Sc. Physics
M. Sc. Chemistry

Ph.D. Programme

Mathematics, Physics, Chemistry

<http://vitap.ac.in/school-of-advanced-sciences/>

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Department of Physics

The Department of Physics offers an M.Sc. programme with specialization in frontline areas of modern day technology. The Physics department also provides more than 10 different courses of UG and PG level for other Schools of the University. Students are trained to develop foundational concepts and knowledge in basic and engineering sciences. Laboratory hours complement their study by providing them with hands-on experience on various aspects of the subject and upgrade their skills by exposing them to the latest technological developments. Additionally, students have the opportunity to get engaged in research projects with faculty members starting from their undergraduate level. Research at our department helps students develop essential analytical and problem solving skills to deal with the current and future technological challenges.

The department is actively engaged in research in the following fields: Nanomaterials, Transparent Conducting Materials for Optoelectronic Applications, Photonics, Photovoltaics, Sensors, Composite Materials, Coatings, Condensed Matter and Biological Physics.

Department of Mathematics

Department of Mathematics offers two programmes: Dual Degree Programme B.Sc. & M.Sc. Data Science (with exit option B.Sc Data Science) and M.Sc. Data Science. The department further offers, more than 20 different courses for UG and PG programmes from other Schools. Courses in Mathematics are taught by incorporating technology into classroom teaching using a right blend of traditional teaching tools and computer algebra systems (CAS) such as MATLAB and R Programming. Use of MATLAB in teaching-learning process establishes Student-centric learning environment where the students are taught Mathematics through experimentation, visualisation and discovery. Further, the department specializes in the following research areas:

Nonlinear Dynamical System, Modelling of Memory Devices, Integral Transform, Operator Theory, Hydrodynamics Stability, Thermal Convection, Elasto Hydrodynamic, Algebraic Coding Theory, Cryptography, Fractal, MHD Boundary Layers, Perturbation Methods, Stochastic Differential Equation, Approximation Using Linear Positive Operators, Fluid Dynamics, Nonlinear Mathematical Programming Problem, Solute Transport Modelling, Graph B-Coloring, Cosmology and more.

Department of Chemistry

Department of Chemistry offers an M.Sc. programme, along with offering 7 courses for the UG and PG programmes from other Schools. The environmental chemistry laboratory is planned to have advanced analytical instruments and laboratory process equipment for project-based hands-on training to the students in fresh water and effluent water analysis, soil testing methods, air pollution studies, etc. This exposure from doing live experiments would enhance the students' understanding about environmental studies.

The department engages in research in the fields of Materials & Nano Science, Homogeneous Catalysis, Supramolecular Inorganic Chemistry, Spectroscopy, Coordination Chemistry, Molecular Machines, Organic synthesis, among many other areas.



Facilities : SAS has well equipped labs with state of the art equipment and facilities that are essential for research and learning in the advancement of the sciences.

Physics Laboratories: The laboratories under the department provides practical experience to students through experiments on fundamental concepts and current technological applications such as Solar cells, Light Emitting Diodes, Optical fibres etc.

Chemistry Laboratories: The chemistry laboratory is equipped with modern analytical instruments, advanced process equipment, a range of special glassware and chemicals. They provide hands-on skill training with systematic analytical competence for the budding engineers. Also, the laboratory supports the students and research scholars for their chemical analyses needed in engineering project works or research.

Reach Us : Beside AP Secretariat, Near Vijayawada, Andhra Pradesh - 522237, INDIA

Website : www.vitap.ac.in Contact us : phy.workshop@vitap.ac.in

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