

**INTERNATIONAL WORKSHOP ON
"CHARACTERIZING NANOMATERIALS
THROUGH X-RAY PHOTOEMISSION
SPECTROSCOPY"**

Dec 09-Dec 13, 2022

Organised by

Panjab University, Chandigarh, India

'An event under'

Global Initiative of Academic Networks

REGISTRATION FORM

Name (Mr./Ms./Dr.): _____

Designation: _____

Affiliation: _____

Address: _____

Phone: _____

Email: _____

Accommodation Required (Yes/No): _____

Amount: _____

Mode of payment (NEFT): _____

NEFT URN: _____

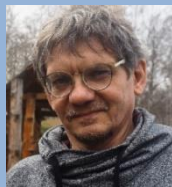
Dated: _____

(in favor of 'Coordinator GIAN, Ac. No:
41435937793, IFSC: SBIN0000742, State bank
of India, Panjab University)

Signature: _____ Date: _____

<https://forms.gle/wQiuSgAbRKeAeT4o8>

Guest Faculty/Foreign Expert



Dr. Asanov Igor, PhD, an expert in X-ray photoelectron spectroscopy and electronic structure of materials. His research mainly focuses on electronic structure of wide class of compounds including nanocomposite and carbon-based nanomaterials (graphene compounds, especially fluorides and oxides, nanotubes, fullerenes), inorganic chalcogenides, etc. He developed easy approaches for analysis of experimental data including angle-resolved XPS for element in-depth distribution, chemometrics procedures for XPS, XAS data analysis. He has skills and experience with laboratory and synchrotron facilities. It works on large experimental datasets such as a combination of XRD, Auger, XAFS, Raman, etc. He is the author of over 150 works.

Course Coordinator



Dr. Sanjeev Gautam, faculty in Dr. S.S.Bhatnagar University Institute of Chemical Engineering and Technology (SSB UICET), Panjab University Chandigarh. He is specialist in X-ray Absorption Spectroscopy (XAS), X-ray magnetic circular dichroism (XMCD) and High-resolution X-ray diffraction (HRXRD) using synchrotron radiation. His research experience includes the synthesis and characterization of various inorganic compounds, study of electronic structure of advanced functional materials including carbon based nanomaterials.

GIAN Coordinator



Dr Gurjaspreet Singh, Professor in the Department of Chemistry and Coordinator in the Energy Research Centre, Panjab University, Chandigarh. He is an expertise in Organometallics, Bio-Inorganic, Organotransition chemistry and Click Chemistry. His research work is primarily based on the Chemistry of Organosilicon compounds focusing precisely on the design, synthesis, characterization and properties of New Organosilicon compounds especially the biological activity, sensing, plant growth regulators and catalytic activities.

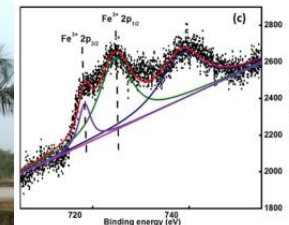
**INTERNATIONAL WORKSHOP
ON
"CHARACTERIZING NANOMATERIALS
THROUGH X-RAY
PHOTOEMISSION SPECTROSCOPY"**

'An event under'



GIAN
Global Initiative of Academic Networks

Dec 09 - Dec 13, 2022



**Organized by
Panjab University, Chandigarh
at
Dr S.S. Bhatnagar University
Institute of Chemical Engineering &
Technology (SSB UICET)**

About GIAN

Global Initiative of Academic Networks (GIAN) is a new program approved by Govt. of India which is aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence

Overview & Scope

High-energy spectroscopy methods play an outstanding role in research of the laws of atomic and electronic structure, and properties of various materials. The course provides complete information on the application of X-ray spectroscopy methods to study the composition, structure, nature of chemical bonds with an emphasis on carbon nanomaterials.

The course consists of an introduction and five sections, each of which is devoted to the fundamental principles, various aspects of the application and experimental implementation of various spectroscopic techniques for the diagnosis of carbon nanomaterials: X-ray photoelectron spectroscopy (XPS), Auger electron spectroscopy (AES), X-ray absorption spectroscopy (XAS), X-ray emission spectroscopy (XES).

About Chandigarh

Chandigarh is one of the most beautiful and well planned cities of India, designed by the French architect Le Corbusier. Serenity and a city are normally two diametrically opposite concepts, which however, get belied in the 'City Beautiful'. Chandigarh is a rare epitome of modernization co-existing with nature's preservation. The city is located near the foothills of the great mountains of Himalayas with the Queen of Hills, Shimla.

About Panjab University

Panjab University is one of the oldest Universities in India established in 1882. University campus is spread over an area of 550 acres in sectors 14 and 25 of the city of Chandigarh. It is ranked 1st among Universities of India and 38th in Asia, Times Higher Education Asian University rankings 2015. Panjab University has a long tradition of pursuing excellence in teaching and research in science and technology, humanities, social sciences, performing arts and sports. PU campus is also attracting and supporting the best minds and recruiting faculty who excel at teaching and research. University has 75 teaching and research departments and 15 Centers/Chairs in the main campus. The Gandhi Bhawan- the major landmark of 'city beautiful' Chandigarh is located at the university campus and has stunning architectural structure.

Accommodation

The participants may be provided with accommodation at the University Guest Houses/hostels on payment basis depending on the availability. Request for accommodation should be send in advance.

Who can attend

Executives, engineers and researchers from manufacturing, service and government organizations including R & D laboratories. Student at all levels (BTech/ MSc/ MTech/ PhD) or Faculty from reputed academic institutions and technical institutions interested in learning about "X-ray Photoemission Spectroscopy analysis".

Registration Fees

The participation fees for taking the course is as follows:

Participants from abroad : US \$300

Industry/ Research Organizations: INR 10000

Academic Institutions: 5000 (faculty) 2500 (Ph.D. student)

Limited Seat: 50 only, so reserve your seat asap.

Discounted price will be offered to Bachelor and Master Degree students.

The above fee includes all instructional materials and assignments and 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

Please contact the course coordinator, Dr. Sanjeev Gautam, Dr. S.S.Bhatnagar University Institute of Chemical Engineering & Technology, (SSB UICET) Panjab University, Chandigarh -160014 (Email: sgautam@pu.ac.in, sgautam71@gmail.com, Mobile.: 9779713212) for any enquiry.

Submission Deadline: Nov 30, 2022

Day 1

Lecture 1: 1 hour 30 min: IA
X-ray spectroscopic methods. Methods of electron spectroscopy. Physical fundamentals of XPS.

Lecture 2: 1 hour 30 min: SG
XPS: experiment and chemical analysis.

Tutorial 1: 2 hours: IA
Processing XPS spectra: composition.

Day 2

Lecture 3: 1 hour 30 min : IA
XPS: quantitative analysis and application for carbon nanomaterials.

Lecture 4: 1 hour 30 min : SG
Analysis of the depth distribution of elements by destructive and non-destructive XPS.

Tutorial 2: 2 hours: SG
Processing XPS spectra: peak fitting.

Day 3

Lecture 5: 1 hour 30 min: IA
The study of the electronic structure by UPS with angular resolution and using synchrotron radiation.

Lecture 6: 1 hour 30 min: SG
Auger electron spectroscopy.

Tutorial 2: 2 hours: SG
Depth profile analysis.

Day 4

Lecture 7: 1 hour 30 min: IA
Fundamentals of XAS. Relationship between the electronic structure of carbon nanomaterials and XAS.

Lecture 8: 1 hour 30 min: SG
XANES and EXAFS features

Consultation 1: 2 hours: IA
Consulting PhD students concerning their XPS and XAS tasks

Day 5

Lecture 9: 1 hour 30 min: IA
Fundamentals of XES. The use of XES to study the chemical bonding in compounds.

Lecture 10: 1 hour 30 min: IA
The use of XES to study the chemical bonding in compounds.

Consultation 2: 1 hour: IA
Consulting PhD students concerning their XPS and XAFS tasks

Requested:

For tutorial students should carry their laptops for hand-on practice.

Who can attend?

- Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories.
- Students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic Institutions and technical institutions.

Consultation:

You can bring your XPS and/or XAS spectra and their analysis to ask question and find the best solution for your scientific problem.