



**Kanoria
PG Mahila
Mahavidyalaya
Jaipur**

29. National Workshop on Perspectives and Advanced Techniques in Nuclear Spectroscopy (PATNS-2020) Date: 14-02-2020 to 15-02-2020

1. Brochure:

REGISTRATION FORM

I, Dr./Mr./Ms.

Faculty Research Scholar Students

Department.....

College/University.....

Full Postal Address.....

Pin Code.....

E-Mail.....

Mobile Number:

Will be participating in the National Workshop on 'Perspectives and Advanced Techniques in Nuclear Spectroscopy', scheduled for February 14-15, 2020 at Kanoria PG Mahila Mahavidyalaya, Jaipur. Necessary registration fee remitted through Cash/ Demand Draft (of a Nationalized Bank only) in favor of Kanoria PG Mahila Mahavidyalaya, Jaipur. DD No.....

Dated.....of.....

.....Bank, Branch.....
payable at Jaipur is attached herewith.

Date: (Signature)

Registration Fee:

Participating Candidate	Up to January 30, 2020	On Spot Registration
Faculty	₹350	₹400
Research Scholar	₹250	₹300
Student	₹150	₹200

Address for Correspondence:
Dr. Usha Bhatia, Convener
 Mobile No.:9828854754
Dr. Sarla Sharma, Convener
 Mobile No.:7230037618

Department of Physics
 Kanoria PG Mahila Mahavidyalaya
 Jawahar Lal Nehru Marg, Jaipur - 302015 (Rajasthan)
 E-mail: patns2020@kanoriacollege.in
 Phone No: +91-141-2707539, 2706672

Note:

- Participants are requested to make their own arrangements for accommodation.
- Kindly check college website for any updates : www.kanoriacollege.in

National Advisory Committee

Dr. A.K. Nagawat, Director, Skill Education, Rajasthan ILD Skills University & Former Professor of Physics, Univ. of Raj., Jaipur
Dr. Alok Pandya, Asso. Prof., Dept. of Physics, JECRC University, Jaipur
Dr. B.K. Sharma, (Retd.) Prof. & Former Dean, Faculty of Science, Univ. of Raj. and Former Dean, Faculty of Science, Manipal University, Jaipur
Dr. Balram Tripathi, Asso. Prof., Dept. of Physics, S.S. Jain Subodh PG (Autonomous) College, Jaipur
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Dr. S.K. Gupta, Asso. Prof., Dept. of Physics, Univ. of Raj., Jaipur
Mr. Sanjeev Kumar, Asst. Prof., Dept. of Physics, Univ. of Raj., Jaipur
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Dr. Subhash Agarwal, Head, Dept. of Physics, S.S. Jain Subodh PG (Autonomous) College, Jaipur
Dr. Subodh Srivastava, Asso. Prof., Dept. of Physics, VGU, Jaipur
Dr. Sudhish Kumar, Prof., Dept. of Physics, MLSU, Udaipur
Dr. Y.C. Sharma, Prof., Dept. of Physics & Dean, R & D, VGU, Jaipur
Dr. Y.K. Gupta, Scientific Officer/F, Nuclear Physics Division, BARC, Mumbai
Dr. Y.K. Vijay, Former President, VGU, Retd. Prof., Dept. of Physics, Univ. of Raj., Jaipur



NATIONAL WORKSHOP
on
**Perspectives and Advanced Techniques
in Nuclear Spectroscopy (PATNS-2020)**
February 14-15, 2020



Organized by
Department of Physics
Kanoria PG Mahila Mahavidyalaya, Jaipur



Venue
Kanoria PG Mahila Mahavidyalaya
JLN Marg, Jaipur 302015, (Rajasthan)



**Kanoria
PG Mahila
Mahavidyalaya
Jaipur**

About the Institution

Kanoria PG Mahila Mahavidyalaya was established in 1965 by Late Shri Bhagirath Ji Kanoria in aesthetic environs at Jawahar Lal Nehru Marg as the first institution of higher education for women through grant-in-aid from the Govt. of Rajasthan. Since the year 2011, college is a self financed institution.

The college has earned a prestigious reputation of harnessing a progressive outlook towards education by introducing new courses at UG and PG level, from time-to-time. College offers 11 under graduate and 15 post graduate programs of Science, Arts and Commerce. State of the art infrastructure facilities and environment of academic excellence provides a student friendly atmosphere. Skill enhancement and career oriented courses, like Organic Farming, Soil Testing, Art and Craft Design, Office Management, Accounting Technician, Nutrition and Dietetics etc. have also been introduced. By making concerted efforts to collaborate with Govt. Organizations, NGOs and premier institutions, the college has been inculcating critical abilities, a scientific temper and an analytic and reflective approach in students.

The Theme

Nuclear spectroscopy is a powerful tool to study the structure of matter based upon reactions that take place in excited atomic nuclei. This is a widely used technique because this is more sensitive than other spectroscopic methods, reason being it can detect the trace of an element present on the order of parts per billion.

This has a major role in the fundamental sciences, energy, environmental science, medicine, analytical chemistry etc. Some common but important applications include the measurement of radiations used in nuclear medicine,

monitoring radiation for health physics and also nuclear radiation pollution.

Portable gamma spectroscopy is now a days not only supplementing but even replacing the traditional monitors in health physics and security applications. Low background gamma spectroscopy is an important technique in nuclear waste management, nuclear materials and weapons security.

Planetary science is one of the emerging fields in science. Here gamma and neutron spectroscopy is very useful in identifying elements important to planetary geochemistry and to determine their abundant accuracy.

The workshop will highlight the perception of nuclear spectroscopy from fundamental aspects to applications in wide ranging interdisciplinary areas, followed by imparting a rigorous insight on the proficient use of various spectroscopy techniques.

The target audience of PATNS-2020 workshop would be the students pursuing master's course, graduates and the young nuclear community. The workshop will provide them a platform for an exposure to the recent theoretical studies and also the latest techniques in nuclear spectroscopy. They will be acquainted with the actual experimental set-up with all minor experimental details through live demonstrations.

Perspectives and Advanced Techniques in Nuclear Spectroscopy

Sub-themes

Alpha Spectroscopy	Beta Spectroscopy
Gamma Spectroscopy	Scintillation Counter
Neutron Detector	Nuclear Electronics
Activation Analysis using Neutron Source	
Positron Annihilation Spectroscopy	

Chief Patron
Dr. Rashmi Chaturvedi
Director

Patron
Dr. Seema Agrawal
Principal

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Vice-Principal
Faculty of Science

Dr. Sarla Sharma
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Dean,
College Development

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Dept. of Physics

Dr. Sarla Sharma
Dept. of Physics

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Dept. of Physics

Ms. Rekha Prajapat
Dept. of Physics

Ms. Manisha Kumari
Dept. of Physics

Ms. Harsha Sharma
Dept. of Physics

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Dr. Neeru Razdan	Dr. Neelam Bhageshwari
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Dr. Arti Mishra	Dr. Kumud Tanwar
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Ms. Rishi Dassani	Dr. Swati Singh
Dr. Jyoti Kapil	Dr. Sneha Nandwana
Dr. Pragati Natani	Ms. Richa Sharma
Dr. Seema Bansal	Ms. Gunjan Sharma
Ms. Jyoti Poonia	Ms. Pooja Singhal

Kanoria PG Mahila Mahavidyalaya, Jaipur

2. List of resource person/guests:

1. Prof. P.M. Udani, President, Vivekanad Global University, Jaipur
2. Prof. Y.K. Vijay, Former President, VGU Jaipur, Former Prof. University of Rajasthan
3. Prof. B.K. Sharma, Former Prof. and Dean, University of Rajasthan
4. Sh. Rakesh Kumar, Scientific Officer-F, Atomic Minerals Directorate for Exploration and Research (AMD), Jaipur
5. Dr. Narendra Jakhar, Department of Physics, University of Rajasthan
6. Dr. Dalpat Meena, Department of Physics, University of Rajasthan
7. Prof. S.C. Tripathi, Ex. Scientist BARC and Associate Director (Research), GLA University
8. Dr. Minal Bafna, Department of Physics, Agarwal PG College, Jaipur
9. Dr. Rajni Verma, Department of Radiological Physics, SMS Medical College & Hospital, Jaipur
10. Prof. Ashok Nagawat, Director, Skill Education, Rajasthan ILD Skills University & Former Prof., Department of Physics, University of Rajasthan



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3. Geotagged photograph of the event:



 26.88635, 75.81223

Proceeding of Valedictory Ceremony of PATNS-2020



 26.88635, 75.81223

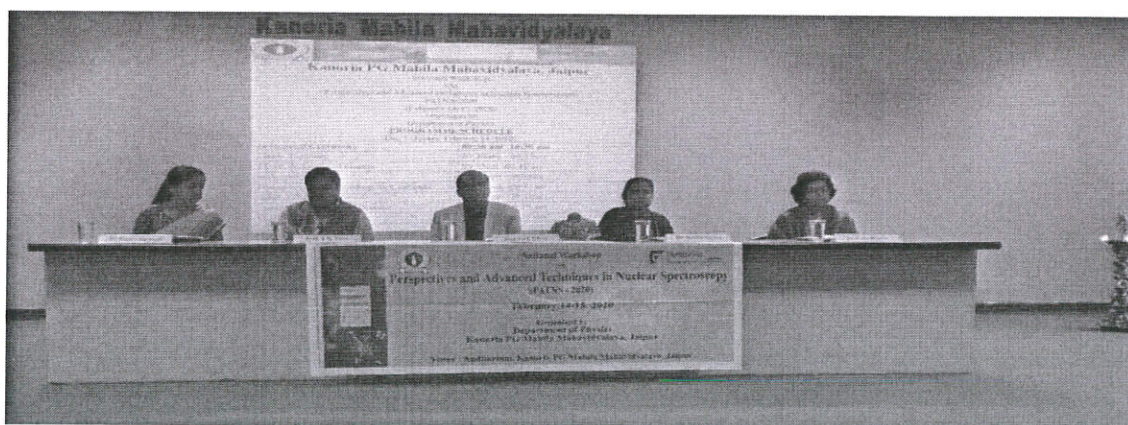
Participants of PATNS-2020

National Workshop
On
Perspectives and Advanced Techniques
in Nuclear Spectroscopy
(February 14-15, 2020)



Two days National Workshop on “Perspectives and Advanced Techniques in Nuclear Spectroscopy” was organized by Department of Physics on February 14-15, 2020 with a view to motivate young participants to look for their future prospects in the field of nuclear spectroscopy. Participants were exposed to the recent theoretical studies and also the latest techniques in nuclear spectroscopy with live demonstrations and also through videos.

The workshop had four technical sessions in all, preceded by the Inaugural ceremony. Each of the technical session was followed by an interactive question-answer session where the students clarified their doubts and also interacted with the Guest Speakers. A total of 176 participants from various educational institutes registered themselves in this workshop.



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JAIPUR

The event started with the felicitation of the Chief Guest Prof. P.M. Udani, President, Vivekananda Global University, Jaipur and Guest of Honor Prof. Y.K. Vijay, Former President, VGU, Retd. Prof., Department of Physics, University of Rajasthan, Jaipur.

The program began with the Saraswati Vandana followed by Lamp Lighting. Dr. Ratna Saxena, Vice Principal, Faculty of Science, welcomed all the dignitaries. Convener of the workshop, Dr. Sarla Sharma elaborated the theme and the objectives of the workshop. She highlighted the important aspects which were to be discussed in this workshop.

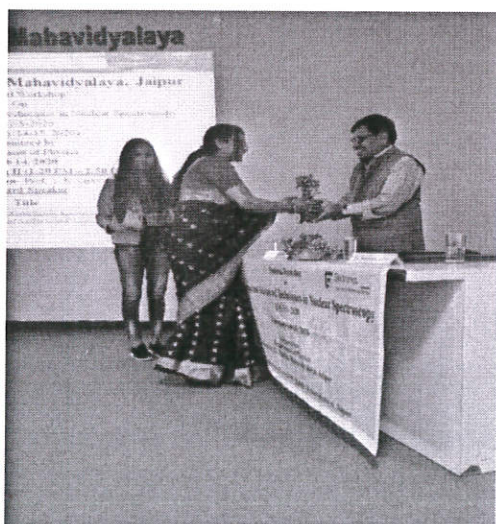
The chief Guest of the inaugural programme, Prof. P.M. Udani, in his inaugural address highlighted that research canvas is going vast in the present scenario in the field of nuclear spectroscopy. This is a good initiative but still there is a big need of better catchment, as there are all over 3000 research centers around the world and out of that 1500 research centers are in India. He encouraged the gathering to attend the seminar with great interest and also motivated them to continue their journey even after PG programme.



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KANDLA PG MAHILA VIDYALAYA
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Prof. Y.K. Vijay, as Guest of Honor, encouraged the young participants of the workshop to use the fundamental applied sciences for the betterment of society as there is a big need to work for energy sector. He emphasized that various energy programs should be run where uranium and plutonium are available as sustainable nuclear fuel. The inaugural programme concluded with a vote of thanks by Ms. Harsha Sharma.

The first technical session of the workshop was chaired by Prof. B.K. Sharma, (Retd.) Prof. & Former Dean, Faculty of Science, University of Rajasthan and Former Dean, Faculty of Science, Manipal University, Jaipur. There were two invited talks in this technical session. As the first speaker, Prof. Y.K. Vijay, spoke on “Alpha ray spectrometry: procedure and applications” with live demonstration of the experiment. The solid state reactor used for the detection of the particles in alpha ray spectrometer was demonstrated. He highlighted that the key parameter in detection process is Simulations which are essential for optimizing the performance and deployment of different detectors.



He demonstrated by live experiments that alpha particles lose some of their energy in the medium too concluding that the alpha particle spectroscopy can be used to know the composition of the material. Prof. Vijay also demonstrated repulsion of alpha particle by nucleus of gold using a simple pendulum and a magnet.

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Second speaker of the session, Shri Rakesh kumar Fogat, Scientific Officer-F, Atomic Minerals Directorate for Exploration and Research (AMD). Jaipur delivered his talk on “Gamma Ray spectrometry of Naturally Occurring Radioactive Materials”. He discussed the applications of Gamma ray Spectroscopy in Uranium exploration. The detection of radioactive and radiological materials is one facet of a multilayered defence against nuclear security threats, which also requires robust prevention. A comparative analysis of gamma ray spectrum obtained from the various types of the detectors along with development of new generation of inorganic scintillation gamma ray detector was also presented. Prof. B.K. Sharma concluded the session by extending his gratitude to the speakers for their valuable deliberations.

After the lunch, second technical session of the workshop was chaired by Prof Y.K. Vijay and Dr. Narendra Jakhar, , Assistant Professor, Department of Physics, University of Rajasthan, Jaipur, was the speaker.



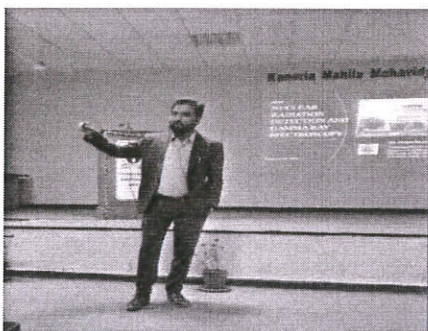
In the first part of his lecture Dr. Jakhar elaborated about the positron annihilation spectroscopy. Explaining the fundamental properties of neutron, he talked about the figure of merit which provides the quality of discrimination.

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JAIPUR

In the second part of his talk, Dr. Jakhar explained about the characterization of AmBe based neutron time of flight system discussing the pulse shape discrimination (PSD) techniques and their block diagrams.

An exhibition by Atomic Minerals Directorate for Exploration and Research (AMD) was also held which displayed posters and geological samples like columbite, tantalite, davidite, secondary uranium material, fossil wood etc. Shri Sanjay Kumar from AMD explored the various experimental and innovative approaches for detecting the illicit trafficking of nuclear and natural occurring radiological materials with explaining the various detectors in a lucid way.

Second day of the workshop began with the third technical session, which consisted of three talks. Dr. Dalpat Meena, Assistant Professor, Department of Physics, University of Rajasthan, Jaipur, the first speaker of the session spoke about the nuclear radiation detector and gamma spectroscopy. He talked about the various types of the detectors which are used to detect the gamma rays like scintillation counter, which could be further classified into organic and inorganic scintillation detectors and could be used as per the need of the detection of respective radiation. He also discussed about various types of charged particles and their detection process.



Next talk of this session was delivered by Prof. S.C. Tripathi, Ex. Scientist BARC, Associate Director Research, GLA University. Introducing the Indian Nuclear Programme which was started by Homi J. Bhabha in 1909, he discussed the various types of nuclear reactors and nuclear

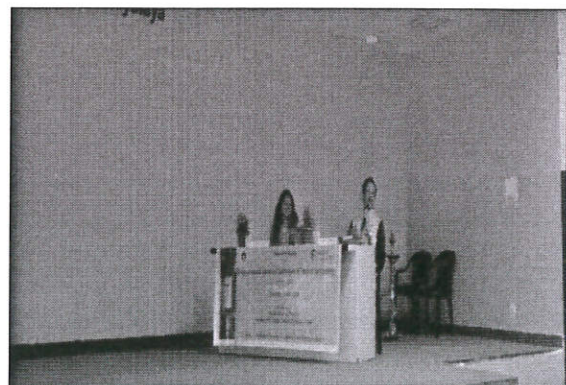
radiations and highlighted the principles of gamma spectroscopy and its importance in nuclear technology. An emphasis was given on the nuclear wastage obtained from the nuclear reactors which could be utilized for the welfare of society in the various fields.

S. C. Tripathi
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KANCHARI PO MANILA MAHARAJA
UNIVERSITY



Third speaker of the session was Dr. Minal Bafna, Head, Department of Physics, Agarwal PG College, Jaipur. She spoke on the characteristics of scintillation counter which is widely used for detecting and measuring the ionizing radiation. Prof. S.C. Tripathi concluded the session as the chair person by summarizing the talks of the speakers.

The last technical session of this two day workshop was headed by Prof. S.C. Tripathi and invited speaker was Dr. Rajni Verma, Assistant Professor, Department of Radiological Physics, S.M.S. Medical College & Hospital, Jaipur. Dr. Rajni very well explained the applications of spectroscopy in the various fields of medical science like diagnostic radiology (X-Ray, MRI, PET etc.) and in testing the composition and purity of drugs. She motivated the participants to make their career in this emerging field due to its wide range of application in multidisciplinary areas.



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The valedictory programme of the workshop commenced with the floral welcome of the guests followed by the welcome address by the Principal of the College, Dr. Seema Agarwal.

A compendious report of the workshop was presented by Dr. Rekha Prajapat, organizing secretary of the workshop concluding with the hope that the workshop has been able to achieve the ultimate goal.

Prof. Ashok Nagawat, Director, Skill Education, Rajasthan ILD Skills University & Former Professor of Physics, University of Rajasthan, Jaipur delivered the valedictory address as Chief Guest. He declared this workshop a grand success due to the seminal talks delivered by speakers and the rapt attention exhibited by participants and faculty delegates in unison.

Prof. S.C. Tripathi was the Guest of Honor of the valedictory programme. He addressed the participants of the workshop with his motivating words. He congratulated the organizers for holding the workshop on such an interesting topic which provided a deep insight about the various spectroscopic techniques with live demonstrations and also through videos.



On behalf of the participants, Aryan Goyal, B.Sc. Part III, SEM VI from JECRC University, Jaipur presented his overview about the workshop. He said that all the participants learned a lot through the live demonstration and the detailed descriptions given by the eminent speakers on the topic.

Seema
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JAIPUR

They were also exposed to the various spectroscopy techniques. He very much appreciated the workshop and requested the organizers to conduct more such workshops in future.

Dr. Deepti Chauhan, Organizing Secretary, in her vote of thanks conveyed her gratitude towards all the eminent speakers, guests, participants and faculty members from various institutions and thanked everyone, who directly or indirectly helped in making this workshop a grand success.

The two day National Workshop was concluded by National Anthem.

Deepti
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