

INDIAN PHYSICS ASSOCIATION

ANNUAL GENERAL BODY MEETING

**Lecture Theatre, Tata Institute of Fundamental Research,
Homi Bhabha Road, Colaba, Mumbai 400005
May 24, 2018**

GENERAL SECRETARY'S REPORT

Distinguished IPA members and colleagues, it gives me great pleasure to present the report on IPA activities. I am reporting for the period between the last AGBM held on July 13, 2016 to till date.

1) Membership

During the period of this report, IPA has enrolled 126 life members, 12 annual members and 1 student member. IPA heartily welcomes all its new members. Till date we have total of 4136 life members.

2) IPA Webpage / Documents

Mr. Shivkumar Khosla had been updating and maintaining the IPA webpage and renewing the IPA domain.

All the originals important documents of IPA are kept in its BARC IPA office, and a soft copy with the Secretary, IPA and also in the Google Drive in the IPA email account.

3) IPA Elections

The notice of biennial elections of IPA Office Bearers for the term 2018 - 2020 has been sent to the members. Two returning officers, Dr. Debasis Sen, BARC, Mumbai and Prof. Sadhana Dash, IIT Bombay, Mumbai have been appointed.

4) Physics News

During the period August 2016 to May 2018, five issues of Physics News have been published with the support of BRNS grant under the editorship of Prof. S. Kailas, Prof. Dipan Ghosh, Prof. Ravi Kumar, Prof. Ameeya Bhagwat and Dr. S. M. Yusuf. Following issues have been published:

Vol. 46 No. 3&4, July-Dec 2016

Vol. 47 No. 1 Jan-March 2017 - Special issue on women physicists

Vol. 47 No. 2 April-June 2017

5) Lectures and Seminars

(i) DAE – C. V. Raman Lecture Series:

IPA continues to receive the financial support from BRNS, DAE for conducting four DAE - C V Raman Lectures across the country every year for the benefit of young researchers and physics teachers. I am happy to inform that from 2017 onwards under this lecture series at least one women speaker has been added. All the five lectures for the year 2016-17 and 2017-18 were successfully conducted with the active support from various IPA local chapters. The details are as follows:

2016-17

- (a) The first lecture was organized by IPA Bombay Chapter on Feb 11, 2017 in Guru Nanak College of Arts, Science and Commerce, Mumbai. The lecture was delivered by Prof. Sandip Trivedi, Director, TIFR, Mumbai on “Symmetries and The Birth of the Universe”.
- (b) The second lecture was organized by IPA Bangalore Chapter on Feb 23, 2017 in St. Joseph’s College, Bangalore. The lecture was delivered by Prof. Sriram Ramaswamy, IISc, Bangalore on “Active Matter and why it matters”.
- (c) The third lecture was organized by IPA Kolkata Chapter on March 1, 2017 in Vidyasagar Evening College, Kolkata. The lecture was delivered by Prof. Sibaji Raha Bose Institute, Kolkata on “Climate Change - Physics Perspective”.
- (d) The fourth lecture was organized by Institute of Physics, Bhubaneswar on June 23, 2017 in Institute of Physics, Bhubaneswar. The lecture was delivered by Prof. Ashok Das, University of Rochester, USA on “The Amazing Integrable Models”.
- (e) The fifth lecture was organized by IPA Hyderabad Chapter on Aug. 17, 2017 in Univ. of Hyderabad, Hyderabad. The lecture was delivered by Prof. Bindu Bambah, Univ. of Hyderabad, Hyderabad on “The Relevance of Raman Effect-from Beverages to Black Holes”.

2017-18

- (a) The first lecture was organized by IPA Indore Chapter on January 23, 2018 in RRCAT, Indore. The lecture was delivered by Prof. Kailash Rustagi IIT Bombay, Mumbai on “Photonics: Harnessing photons for high precision measurements”.
- (b) The second lecture was organized by IPA Bombay Chapter on Feb 10, 2018 in Kishinchand Chellaram College Churchgate, Mumbai. The

lecture was delivered by Dr. Pankaj S. Joshi, TIFR, Mumbai, on “Black Holes and Quantum Stars: An Observer's Paradise”.

- (c) The third lecture was organized by IPA Pune Chapter on February 22, 2018 in Nowrosjee Wadia College, Pune. The lecture was delivered by Prof. Sulabha Kulkarni, Indian Institute of Science Education and Research, Pune on “Smart and Beautiful Materials”.
- (d) The fourth lecture was organized by IPA Kalpkkam Chapter on Feb. 28, 2018 in IGCAR, Kalpakkam. The lecture was delivered by Prof. Neelima M. Gupte, Indian Institute of Technology Madras, Chennai on “The hidden geometry of time series: theory and applications”.
- (e) The fifth lecture by Prof. C. S. Narayanamurthy, India Institute of Space Science & Technology (IIST), Thiruvananthapuram will be organized in IIST, Thiruvananthapuram.

On behalf of IPA, it is my pleasure to put on record our thanks to BRNS (DAE) for supporting the DAE - C V Raman lectures. The annual grant was earlier Rs. One lakh. It has been increased to Rs. Two lakhs since 2017. I would also like to thank all the lecturers, the organizers (local chapters) and the host institutions for the successful conduct of these lectures.

(ii) Prof. P. A. Pandya Endowment Lecture:

Prof. P A Pandya Endowment Lecture – 2016 was delivered by Prof. A. K. Jain, Dept. of Physics, IIT Roorkee on 24th January 2017 in Chanakya block Auditorium, Graphic Era University, Dehradun under the auspices of IPA Roorkee Chapter. The topic of his lecture was “Nuclei and the cosmos”.

Prof. P A Pandya Endowment Lecture – 2017 was delivered by Prof. R. G. Pillay, TIFR, Mumbai on 20th April 2018 in Prof. B. M. Anand Auditorium, Dept of Physics, Panjab University, Chandigarh under the auspices of IPA Chandigarh Chapter. The topic of his lecture was “Search for Neutrino-less Double Beta Decay”.

IPA would like to thank the speakers, Prof. A. K. Jain, and Prof. R. G. Pillay. Thanks are also due to Prof. Gouri Shetty, Secretary, IPA Roorkee Chapter, and Prof. Bivash Behera, Executive Committee Member, IPA, the Chandigarh local chapter and the host colleges/departments for the successful conduct of the lectures.

IPA – IOP Biennial Exchange of Lecturers:

Under the IPA-IOP exchange of programme, Dr. D. K. Srivastava had visited to Institute of Physics (IOP), UK as Homi Bhabha Lecturer during October 10, - 28, 2016. He had delivered lectures in University of Surrey, University of Birmingham and University of Edinburgh.

Prof. John Ross Stewart, Rutherford Appleton Laboratory, UK visited to India as Cockcroft Walton lecturer during December 21-27, 2017. He gave lecture on “Neutron scattering with pulsed neutrons: modern developments and opportunities” at Delhi, Indore and Mumbai under this series.

I would like to thank Prof. D. Kanjial, Dr. Tapas Ganguli, RRCAT, Indore and Dr. N. K. Sahoo for organizing this lecture at IUAC, Delhi, RRCAT, Indore and BARC, Mumbai, respectively.

6) IPA Awards

R D Birla Memorial Award in Physics:

The R D Birla Memorial Award – 2016 was conferred on Prof. V. S. Ramamurthy, National Institute of Advanced Studies, Bengaluru at the IPA Awards function, held at Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

Murli M Chugani Memorial Award for Excellence in Applied Physics:

The Murli M. Chugani Memorial Award – 2014 was conferred on Prof. S. Arunan, ISRO Satellite Centre, Bengaluru at the IPA Awards function, held at Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

The Murli M. Chugani Memorial Award – 2016 was conferred on Prof. R. G. Pillay, TIFR, Mumbai at the IPA Awards function, held at Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

P. K. Iyengar Memorial Award for Excellence in Experimental Physics:

The P. K. Iyengar Memorial Award for Excellence in Experimental Physics – 2016 was given to Prof. K. Maiti, TIFR, Mumbai at the IPA Awards function, held at Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

Buti Foundation Award for Excellence in Theoretical Physics, Astrophysics and Biophysics:

The Buti Foundation Award – 2016 was given to Dr. Bijaya Kumar Sahoo, Physical Research Laboratory, Ahmedabad at the IPA Awards function, held at Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

S. N. Seshadri Memorial Instrumentation Award in Physical Sciences:

The S N Seshadri Memorial Award – 2016 was given to Dr. V. L. Mathe, Savitribai Phule Pune University, Pune at the IPA Awards function, held at

Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

N. S. Satya Murthy Memorial Award in Physics for Young Scientists:

The N. S. Satya Murthy Memorial Award – 2016 was given to Dr. Amit Kumar Agarwal, IIT, Kanpur at the IPA Awards function, held at Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

Aswini Kumar Rath Memorial Award in Nuclear Physics:

The Aswini Kumar Rath Memorial Award – 2016 was given to Dr. Tapan Kumar Rana, VECC, Kolkata at the IPA Awards function, held at Lecture Theatre, Tata Institute of Fundamental Research, Colaba, Mumbai on 24th May 2018.

IPA- Prof. C. V. K. Baba Best Thesis Award in Nuclear Physics: For the year 2016, this award was given to Dr. Swagata Mallik, VECC, Kolkata on “Statistical and dynamical model studies of nuclear multi-fragmentation reactions at intermediate energies” during December 5-9, 2016 in SINP, Kolkata.

For the year 2017, this award was given to Dr. F. Zaidi, Aligarh Muslim University, Aligarh for the title on “Nuclear medium effects in electromagnetic and weak structure functions at moderate Q^2 ” during December 20 to 24, 2017 in Thapar University, Patiala, Punjab.

Anil K. and Bharati Bhatnagar Best Ph.D. Thesis Award in Solid State Physics: For the year 2016, the award was given to Dr. S. Gupta, Mumbai University, Mumbai for the title “Co-based Nano catalysts for Efficient Hydrogen Production by Electrolysis of Water and Hydrolysis of Chemical Hydrides” during DAE Symposium on Solid State Physics December 26-30, 2016 in KIIT University, Bhubaneswar.

For the year 2017, the award was given to Ms. Nasrin Banu, Department of Materials Science, Indian Association for the Cultivation of Science, Kolkata 700032, West Bengal for the title “Structure, Magnetic Properties and Their Ion Irradiation Induced Modifications in Thin Films and Multilayer’s” during DAE Symposium on Solid State Physics December 26-30, 2017 in Convention Centre, Anushaktinagar, Mumbai.

Rahul Basu Memorial Award in High Energy Physics: This Award was instituted in the year 2012 by Dr. Neelima Gupte, in memory of her late husband Dr. Rahul Basu. The award is to be given for the best thesis

presentation in High Energy Physics during the DAE Symposium in High Energy Physics.

For the year 2016, the award was jointly given to Dr. Bhavna Gumber, Calcutta University for the title ‘Search of Large Extra Dimensions in g+ET final state in pp collisions with the CMS detector at the LHC’ and Dr. Roji Pius, Harishchandra Research Institute, Allahabad for the title ‘Perturbative aspects of String Theory and Gauge/Strong Duality’ during the DAE Symposium in High Energy Physics, DAE Symposium on High Energy Physics December 12-16, 2016.

C. L. Bhat Memorial Award (Astronomy Olympiad Orientation – cum - Selection Camp):

For the year 2017, the awards were given to Mr. Malayavardhan Prajapati for Astronomy Olympiad (Junior group) and to Mr. Mulinti Shaik Wajid for Astronomy Olympiad (Senior group).

For the year 2018, the awards were given to Mr. Prashant Gokhale for Astronomy Olympiad (Senior group).

Indian National Physics Olympiad: The award for “Best Solution to a Challenging Problem” award was given to Mr. Shubam Atri for 2017. The award for the “Best Performance in Experimental Programme” was given to Mr. Debaditya Pramanik for 2017.

I congratulate all the awardees. I would like to thank all the Selection Committee Members of various IPA Awards.

7) Interaction with Overseas Physics Associations / Societies

IPA – IOP Annual Exchange of Lecturers: As mentioned above, under this exchange programme Prof. John Ross Stewart, Rutherford Appleton Laboratory, UK visited to India from December 21-27, 2017 to deliver Cockroft Walton lectures and D. K. Srivastava had visited to IOP, U. K. from October 10, - 28, 2016 to deliver Homi Bhabha Lectures.

Association of Asia Pacific Physical Societies: IPA continues to be a member of the Association of Asia Pacific Physical Societies.

8) Activities of IPA Chapters

Presently, IPA has 44 chapters, some of which have been quite active. I present below a brief report on the activities of these chapters.

Mumbai Chapter: Indian Physics Association Mumbai Chapter in association with Kishinchand Chellaram College, Mumbai organised the Department of Atomic Energy- C. V. Raman Lecture on Feb 10, 2018 in Kishinchand Chellaram College, Churchgate, Mumbai. The lecture was delivered by Dr. Pankaj S. Joshi, TIFR, Mumbai, on “Black Holes and Quantum Stars: An Observer's Paradise”.

A Public lecture by Prof. Monica Grady and Prof. Ian Wright from Space Science Department, Open University, U.K. delivered lectures on 8th February 2018. This was organized by NES Ratnam College, Mumbai with IPA Mumbai Chapter and British Council.

Indian Physics Association Mumbai Chapter in association with Guru Nanak College of Arts, Science and Commerce, Mumbai, organised the Department of Atomic Energy- C. V. Raman Lecture on February 11, 2017 at Guru Nanak College of Arts, Science and Commerce, Mumbai. The lecture was delivered by Prof. Sandip Trivedi, Director, TIFR, Mumbai on “Symmetries and The Birth of the Universe”.

A BRNS Theme Meeting on Science and Technology in National Development was held at Tata Institute of Fundamental Research, Mumbai on November 11, 2017. The Theme Meeting was organised jointly by National Centre for Science Communicators, Nehru Science Centre, Materials Research Society of India, Indian Physics Association, Board of Research in Nuclear Sciences (BRNS) and Tata Institute of Fundamental Research as a tribute to Dr. R Chidambaram, Principal Scientific Advisor to the Government of India, for his enduring and continuing contributions to national development.

The topics for the Theme Meeting were Neutron Scattering, High Pressure Physics, National Security, Nuclear Diplomacy, Rural Technology, Education, Science-Industry Synergy, National Knowledge Network and Nuclear Energy Power and Non-Power.

Indore Chapter: The chapter organised the DAE – C. V. Raman Lecture for the year 2017-18 delivered by Dr K C Rustagi at the Homi Sethna Lecture Hall, Convention Centre, Raja Ramanna Centre for Advanced Technology, Indore on Jan 23, 2018. Dr. K. C. Rustagi delivered the Lecture titled, “Photonics: Harnessing photons for high precision measurements”. The programme was presided over by Dr. P.A. Naik, Director, RRCAT. The lecture was very well received by the 140 strong audience comprising scientists, faculty members and students from RRCAT, UGC-DAE CSR, DAVV Indore, IIT Indore and several colleges of Indore. There was lively discussion after the talk which continued well into lunchtime.

The General Body meeting of the Indore Chapter of IPA was also held on January 23, 2018 at RRCAT, Indore. In this meeting, the new IPA Indore Chapter office bearers were elected. All the posts were filled with voice vote. The following are the new office bearers of the IPA Indore Chapter:
President: Dr. V. Ganesan, Centre Director UGC-DAE CSR, Indore
Secretary: Dr. Thomas Andrews, Head, Dept of Appl Phys and Optoelectronic, SGSITS, Indore
Vice President: Dr. Arup Banerjee, Head, HRDS and Dean-Academic HBNI, RRCAT, Indore
Treasurer: Dr. Suparna Pal, SO/F, Optical Coatings Lab, ALOD, RRCAT, Indore

Pilani: 1. National Science Day Celebrations on Feb 28, 2017 and 2018 : Indian Physics association Pilani chapter celebrated National Science Day on 28th Feb 28, 2017 and 2018, at CSIR- Central Electronics Engineering Research Institute (CEERI) Pilani. An invited talk delivered by eminent Physicist on the current physics topics. Prof. KJ Rangra presented on the topic " Radio Frequency MEMS Design, Technology. Students from various schools visited CEERI Pilani laboratory to see different ongoing research project works. Prof. O.S Lamba, Senior Principal Scientist, and Secretary of IPA Pilani chapter highlighted on the discovery of Raman Effect by the Nobel Prize winner Dr. C.V Raman. Chapter president chief scientist Prof.(Dr.) V.K Khanna presented mementos to the invited speakers and vote of thanks.
2. Visit of Meritorious students for science motivation : Students from RBSE and CBSE of high merits are invited to visit of CEERI to motivate for science and engineering technology and future scopes in this area. Students visit with their parents and participated in all events.
3. Guest lectures from the scientist from CEERI Pilani were arranged for 10+2 science students for students visit CEERI, Pilani on several occasions
4. Efforts continue to increase members strength of association

Roorkee Chapter: The chapter organized an IPA lecture series. Following two lectures were conducted:

- i) Prof. Madhavan, IUAC, New Delhi gave lecture on "Femtoscience studies to map the nuclear processes from zeptosecond to microsecond range" on 9th October 2017.
- ii) Dr. Gyanendra Kumar, IIT Roorkee gave lecture on "Chaotic Dynamics of Erbium-doped Fiber Ring Laser" on 8th September 2017.

Gyanpur Chapter: A general body meeting of Gyanpur chapter was held and followings were elected as office bearers.

1. Dr K S Upadhyaya as chairman
2. Dr Shailendra Kumar Shukla secretary
3. Dr Jay Prakash Dubey vice president

4. Dr Suresh Kumar Pande treasurer

During session 2017-18 following activities were done.

1. Weekly lectures on current topics nano particles and their applications
2. Meetings of executive body
3. A research foundation trust has been formed at Gyanpur
4. Aim of trust is to spread aims and objectives of Indian Physics Association.

Varanasi Chapter: IPA Varanasi Chapter organised several invited Talks from eminent Professors / Scientist as below:

- a) May 9, 2016 on “Slow highly charged ion interaction with atoms/molecules” by Dr. Pragya Bhat, IUAC, New Delhi
- b) Sep 9, 2016 on “Nuclear Energy and radiation safety” by Dr. B.K. Nayak, BARC, Mumbai
- c) Nov 11, 2016 on “Nobel prize in Physics 2016” by Prof. T.V. Ramakrishnan, IISc/BHU
- d) Feb 23, 2017 on “Role of nano materials to crucial problems facing human beings” by Prof. O.N. Srivastava, BHU
- e) Mar 25, 2017 on “Understanding the states of matter” by Prof. Shri Singh, BHU
- f) Mar 31, 2017 on “The curious case of Condensed Matter Physics” by Prof. T.V. Ramakrishnan, IISc/BHU
- g) Apr 7, 2017 on “A Brief History of Spectroscopy & Laser Applications” by Prof. S.N. Thakur, BHU
- h) Apr 15, 2017 on “Evolution of Physics: A brief overview” by Prof. Y. Singh, BHU
- i) Apr 22, 2018 on “Nano materials for light emitting displays, bio-imaging and cancer therapy applications” by Dr. R.S. Ningthoujam, BARC, Mumbai
- j) Sep 15, 2017 on “A search for an unlimited sustainable energy source for future generations” by Prof. R. Shanker, BHU
- k) Oct 6, 2017 on “Atomic Packing in solids” by Prof. R.S. Tiwari, BHU
- l) Oct 10, 2017 on “From simple to complex fluids” by Prof. Jokhan Ram, BHU
- m) Oct 27, 2017 on “Philosophy and physiology of neuroendocrine glands” by Prof. C. Haldar, BHU
- n) Nov 3, 2017 on “Thunderstorms and its consequences” by Prof. R.P. Singh, BHU
- o) Dec 14, 2018 on “Heterostructures for nanoelectronics and photovoltaics” by Dr. D. Jariwala, California Inst. Of Tech., USA
- p) Jan 16, 2018 on “Compact Time Projection Chamber for the sPHENIX experiment at RHIC” by Dr. Prakhar Garg, Stony Brook Univ (US)
- q) Feb 21, 2018 on “Symmetries and anomalies” by Prof. L. Bonora, SISSA (Trieste), Italy

- r) Mar 16, 2018 on “Wonders that materials could do!!” by Prof. O.N. Srivastava, BHU
- s) Mar 23, 2018 on “Phase transitions in magnetic shape memory alloys” by Prof. D. Pandey, IIT (BHU)
- t) Apr 9, 2018 on “Stephen Hawking: Explorer of cosmos” by Prof. J. Maharana, IoP, Bhubaneswar
- u) Apr 12, 2018 on “A journey of light measurement from classical to quantum” by Dr. H.C. Kandpal, NPL, New Delhi
- v) Apr 13, 2018 on “Science in India: planning, achievements and future perspective” by Prof. Shri Singh, BHU
- w) Apr 20, 2018 on “The story of gravitational wave detection with laser” by Prof. S.N. Thakur, BHU
- x) Apr 24, 2018 on “Black holes and ghosts” by Prof. S. Kar, Univ. of Delhi

9) **Gender in Physics Working Group (GPWG)**

There was the proposal by Professor Prajval Shastri et al to constitute a Gender in Physics Working Group. Professor Shastri, who was an invitee to the EC meeting, highlighted the need for such a working group that would coordinate national efforts towards gender parity in physics specifically, and liaise with similar international bodies. The EC approved the establishment of a Gender in Physics Working Group. The Working Group will be chaired by Professor Prajval Shastri, and have Prof Vandana Nanal as the ex-officio member from the IPA EC. The Chair and ex-officio EC member of the working group will co-opt about four other members into the working group in consultation with the President. The working group will, inter alia, collate information on the status of gender parity in the Indian physics profession, facilitate forums for physicists to deliberate on the issue, come up with recommendations from time to time, help the IPA raise funding for the activities of the working group, set up a portal on the IPA website, and network with corresponding national working groups of IPA's sister organizations such as the IOP and APS, as well as IUPAP. The term of the working group will be for three years, with continuation subject to renewal by the IPA executive council.

Following are the members of the GPWG of IPA:

Prof. Prajval Shastri (Chair)

Prof. Suchetana Chatterjee, Presidency University, Kolkata

Prof. Srubabati Goswami, Physical Research Laboratory, Ahmedabad

Prof. Resmi Lekshmi, Indian Institute of Space Science and Technology, Thiruvananthapuram

Prof. Tanusri Saha-Dasgupta, SN Bose National Centre for Basic Sciences, Kolkata

Prof. Vandana Nanal, Representative from the IPA Executive

10) Donations and Financial Support for IPA

The total donation received from IPA members till date for the Physics News corpus is Rs. 2,96,313/-. IPA thanks all the donors for this kind gesture and their continued support to IPA.

Before concluding, I take this opportunity to thank the President IPA, Prof. D. Kanjilal, Vice President, Dr. N. K. Sahoo, Treasurer, Dr. D. V. Udupa, Joint Secretary, Dr. Samit Mandal, Editors, Physics News, Dr. S. Kailas, Prof. Dipan Ghosh, Dr. Ameeya Bhagwat and Dr. G. Ravikumar, and all other members of the Executive Committee for their unstinted support.

I also wish to express my deeply felt appreciation of the hard work done by Mrs. Suvarnalatha and Mr. Ashok Dhule of IPA office. Without their dedication to the cause, it would not have been possible to make whatever small progress that we have made during the period of this report. I thank them profusely for their whole-hearted support in conducting the IPA activities.

I now request the IPA members present here, to accept this report.
Thank you!

S. M. Yusuf
General Secretary, IPA

TIFR, Mumbai
May 24, 2018