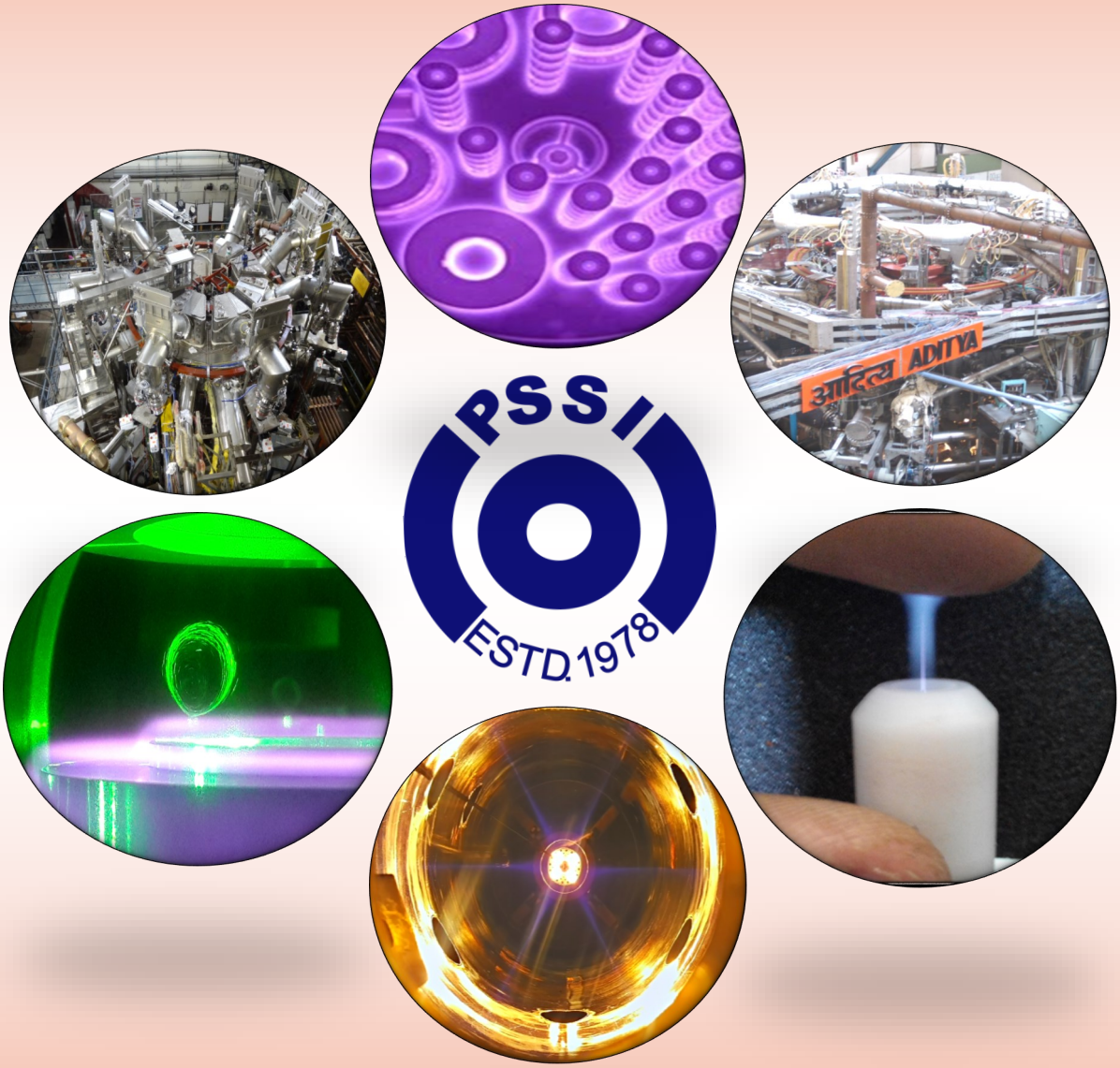
# PLASMA-2017

## 32nd National Symposium on Plasma Science & Technology

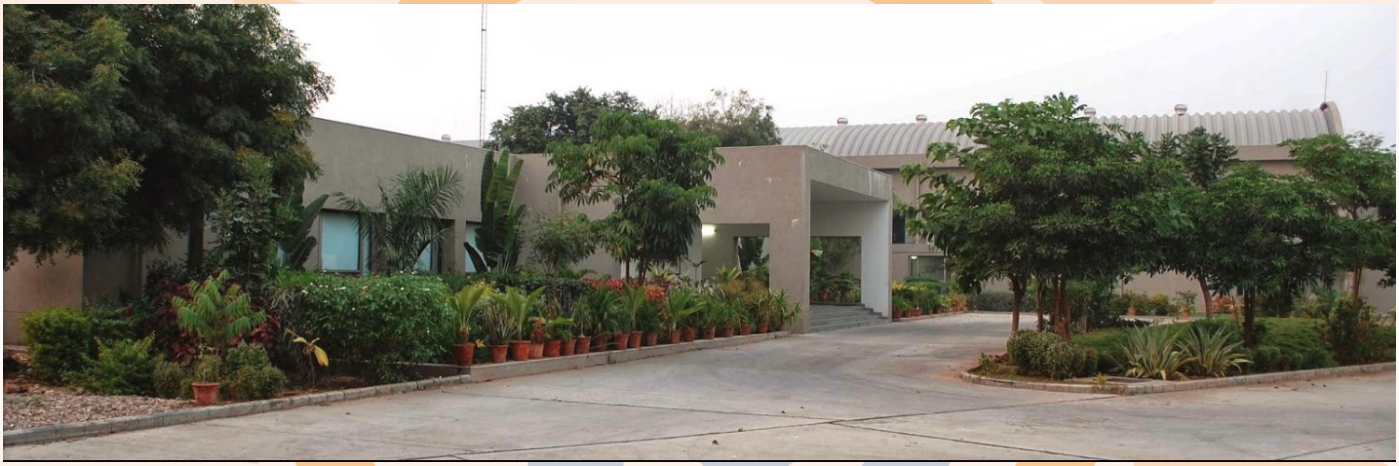
**7-10 November, 2017**



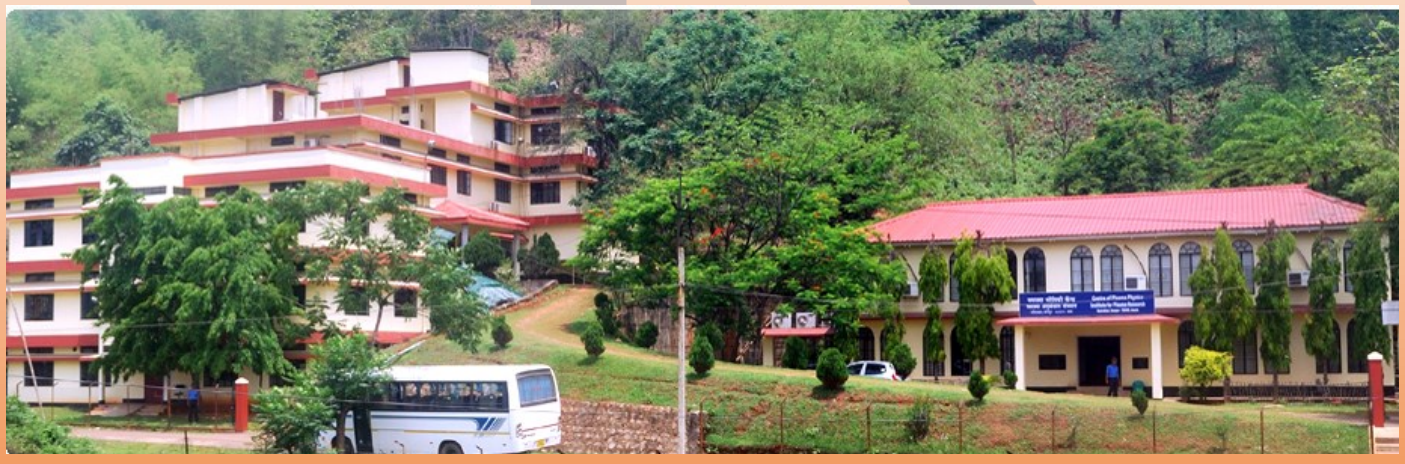

# Schedule & List Of Abstracts

Institute for Plasma Research, Gandhinagar (Gujarat)

Institute for Plasma Research, Gandhinagar



Facilitation Centre for Industrial Plasma Technologies (FCIPT) , Gandhinagar



Center of Plasma Physics (CPP-IPR) Guwahati

# Plasma-2017

32nd National Symposium on Plasma Science & Technology

**(Plasma for Societal Benefits)**

***07-10 November 2017***

# Conference Schedule

***Compiled & Edited by***

Dr. Sandhya Dave
Mr. S. Shravan Kumar
Mr. Vijayakumaran
Mr. Raj Singh
Dr. L. M. Awasthi

***Organized by***

Plasma Science Society of India
Board of Research in Nuclear Sciences
&
Institute for Plasma Research, Gandhinagar, Gujarat, India

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32nd National Symposium on Plasma Science & Technology on
Plasma for Societal Benefits

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## *From The Editors Desk*

Dear Friends,

On behalf of the Editorial Board, Local Organizing Committee, PLASMA 2017, we are glad to inform that 32nd National Conference on Plasma Science and Technology is being organized by Plasma Science Society of India (PSSI) and Institute for Plasma Research (IPR) from November 7-10, 2017 at IPR, Gandhinagar. It gives us immense pleasure in writing this message on this occasion.

The theme of this year's conference is "*Plasma for Societal Benefits*". The main objective is to improve the knowledge base and skills through interactive sessions, for addressing issues of concern to our society at this forum over immediate time scales and over times scales of future energy requirements. The scientific content of this conference focuses on how to incorporate the knowledge, expertise and skills developed over diversified spread of plasma science and technology viz., Industrial Applications, Agriculture, Medical Science, Material Development, Space and Defense Applications and in Energy Domains, especially of Fusion Energy. This is an opportunity for young researchers from the field of science and technology to have a good overview of the issues related to this subject.

Delegates attending this year conference will definitely feel the absence of Prof P. K. Kaw, founder director of IPR. His sudden demise is a great loss, not only to the plasma community in India but also to the community worldwide. Young researchers can take a leaf out of his contributions and focus on realizing his dreams for the country.

This year conference will see lectures delivered by the esteemed faculties on variety of fields where plasma science has ventured, covering almost all aspects of plasma science and technology. Besides this, large time is allocated for the poster session, which we believe offers a better platform for enthusiastic students, young research scientists and academicians for serious interactions. We extend our warmest thanks to all authors for their keen interest, enthusiasm and timely submission of abstracts. This year conference will have more than 450 abstracts and probably equal number of delegates.

As editors of abstract book for Plasma 2017, we anticipate that this conference will prove to be of immense value and will be extremely useful to expand the scope of application domain of plasma science and technology. This forum of collection of thoughts will also offer a window for new perspectives and directions in the area of societal benefits of plasma science and technology.

Lastly, we would like to wish all delegates an interactive, knowledge sharing and harmonious PLASMA - 2017.

# Foreword

Welcome to the 32nd National Symposium on Plasma Science & Technology which is to be hosted by Institute for Plasma Research, during 07-10 November 2017 at Gandhinagar, Gujarat. The theme for this symposium is *"Plasma for Societal Benefits"*, a topic that is quickly gaining traction in both academic and industrial discussions because of the relevant plasma based solutions to societal issues such as energy, agriculture, healthcare, waste management as well as industry along with nano-technology. This annual event will provide a forum in which the whole plasma community will learn, interact and discuss about their works which should lead to potential research collaborations at various laboratories.

Plasma based technologies have lot of potential to give to the society and thus helping the development of the country. The time has come for PSSI to lead from the front in taking the plasma science to all fronts of country's education from schools to colleges and beyond. We believe that the added advantage of IPR, with exclusive facilities, hosting the symposium will help many young students and researchers to take up the challenge to every part of the country.

The success of this symposium depends completely on the effort, talent, and energy of researchers in the field of Plasma Science and Technology who have written and submitted abstracts for both oral and poster presentations on a variety of topics. The program will be enlightened by Invited Talks also. I thank all those participants sincerely. Praise is also deserved for the Scientific Program Committee members and many others who have invested significant time in putting a commendable program for this symposium.

I would like to encourage each of our members to increase your involvement in PSSI to share your knowledge, skills, and expertise with our community, so that we can all benefit personally and professionally.

My best wishes for the grand success of Plasma 2017.

Prof. Prabal Kumar Chattopadhyay
President, Plasma Science Society of India.

Institute for Plasma Research,
Gandhinagar-382 428, India

# Message

I am happy to know that the Plasma Science Society of India is organizing its 32nd National Symposium on Plasma Science and Technology in collaboration with the Institute for Plasma Research during 7- 10 November, 2017 at IPR. This year's conference has special significance since it focuses on applications of Plasma Technology for the benefit of society.

It is well known that plasma science & technology has made major advances over the past few decades. The worldwide effort towards Controlled Thermonuclear Fusion, which has found a focus in the International Thermonuclear Experimental Reactor (ITER) project, is making good progress. There are major technological contributions being made by ITER-India in this project, with Indian deliverables being amongst the first to reach the project Site.

In parallel with the fusion programme is the ever-growing list of plasma applications in industry, agriculture, textile processing, waste disposal, aerospace technologies, plasma stealth systems, plasma thrusters, plasma antennas and so on. These are major challenges for the plasma science community in India. Rapid development & deployment of these technologies in India over the next few years requires a focused and broad-based effort similar to that for the fusion programme.

I would hope that participation in this Symposium would motivate young researchers from different branches of science and engineering to enter these challenging fields.

Lastly, on behalf of IPR, I thank the organizers for their sincere efforts for organizing this symposium and BRNS for its financial support. I extend my best wishes to all the participants and hope that the Symposium will achieve its desired objectives.

Shashank Chaturvedi

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# PLASMA – 2017

## Conference Schedule (07-10 November, 2017)

| | Time | Time | Hrs | Time | Time | Hrs | Time | Time | Hrs | Time | Time | Hrs | Time |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8:00-9:00 | 9:00-10:15 | 1h 15m | 10:15-10:45 | 10:45-13:00 | 2hr 15m | 13:00-14:00 | 14:00-17:00 | 3 hrs | 16:30-17:00 | 17:00-19:00 | 2 Hrs | 19:30-21:00 |
| DAY-01 07-Nov-2017 | registration | **Inaugural Function** | Min | High Tea | **Session - 1 (BP)** | Min | Lunch | **Poster Session – 1 (BP +PU+PP)** | | Tea | **Buti Award Presentations** | | **Dinner** |
| | | Inauguration | 30 | | S1-I-01 - Invited | 30 | | | | | BYSA-01 | 20 | |
| | | Keynote address | 45 | | S1-I-02 - Invited | 30 | | | | | BYSA-02 | 20 | |
| | | | | | S1-O-01 - Oral | 12 | | | | | BYSA-03 | 20 | |
| | | | | | S1-O-02 - Oral | 12 | | | | | BYSA-04 | 20 | |
| | | | | | S1-O-03 - Oral | 12 | | | | | BYSA-05 | 20 | |
| | | | | | S1-O-04 - Oral | 12 | | | | | BYSA-06 | 20 | |
| | | | | | S1-O-05 - Oral | 12 | | | | | | | |
| | | | | | D1/S1-Basic Plasma | | | D1 / P1 (BP + PU + PP) | | | | | |

| | 09:00-11:15 | 2h 15m | 11:15-11:30 | 11:30-13:45 | | 13:40-14:45 | 14:45-17:45 | 16:30-17:00 | 17:45-18:30 | 18:30-19:30 | 20:00-21:00 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY-02 08-Nov-2017 | **Session - 2 (NF)** | Min | Tea | **Session - 3 (PP + IP)** | Min | Lunch | **Poster Session – 2 (NF)** | Tea | **Guzdar Award Presentation** | **PSSI-GBM** | **Dinner** |
| | S2-I-01 - Invited | 30 | | S3-I-01 - Invited | 30 | | | | | | |
| | S2-I-02 - Invited | 30 | | S3-I-02 - Invited | 30 | | | | | | |
| | S2-O-01 - Oral | 12 | | S3-I-03 - Invited | 30 | | | | | | |
| | S2-O-02 - Oral | 12 | | S3-O-01 - Oral | 12 | | | | | | |
| | S2-O-03 - Oral | 12 | | S3-O-02 - Oral | 12 | | | | | | |
| | S2-O-04 - Oral | 12 | | S3-O-03 - Oral | 12 | | | | | | |
| | S2-O-05 - Oral | 12 | | | 12 | | | | | | |
| | D2 / S2- Nuclear Fusion | | | | | | D2 / P2 (NF) | | | | |

| DAY-03 09-Nov-2017 | 09:00-11:15 | 2h 15m | 11:15-11:30 | 11:30-13:45 | | 13:40-14:45 | 14:45-17:45 | 16:30-17:00 | 17:45-19:30 | 1h 30m | 19:30-21:30 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Session - 4 (SA)** | Min | | **Session - 5 (LP + CM)** | Min | | | | **Session - 6 (EP + PU)** | Min | |
| | S4-I-01 - Invited | 30 | | S5-I-01 - Invited | 30 | | | | S6-I-01 - Invited | 30 | |
| | S4-I-02 - Invited | 30 | | S5-I-02 - Invited | 30 | | | | S6-I-02 - Invited | 30 | |
| | S4-O-01 - Oral | 12 | | S5-O-01 - Oral | 12 | | | | S6-O-01 - Oral | 30 | |
| | S4-O-02 - Oral | 12 | | S5-O-02 - Oral | 12 | | | | S6-O-02 - Oral | 12 | |
| | S4-O-03 - Oral | 12 | | S5-O-03 - Oral | 12 | | | | S6-O-03 - Oral | 12 | |
| | S4-O-04 - Oral | 12 | | S5-O-04 - Oral | 12 | | | | S6-O-04 - Oral | 12 | |
| | S4-O-05 - Oral | 12 | | S5-O-05 - Oral | 12 | | | | | | |
| | **D3 / S4- Space Plasma** | | | **D3 / S5 – Laser Plasma + Computer Modeling** | | | **D3 / P3 (SA+CM+EP)** | | **D3 / S6- Exotic Plasma + Pulsed Power** | | |

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|---|---|---|---|---|---|---|---|
| DAY-04 10-Nov-2017 | **09:00-12:00** | **11:15-11:30** | **12:00-13:30** | **1 Hr 30 min** | **13:30-14:30** | **14:30-15:30** |
| | **Poster Session – 4 (IP + LP + PD)** | **TEA** | **Session - 7 (PD)** | | **LUNCH** | **Concluding Session & Award Presentation** |
| | | | S7-I-01 - Invited | 30 | | |
| | | | S7-I-02 - Invited | 30 | | |
| | | | S7-O-01 - Oral | 12 | | |
| | | | S7-O-01 - Oral | 12 | | |
| | | | S7-O-03 - Oral | 12 | | |
| | | | S7-O-04 - Oral | 12 | | |
| | **D4 / P4 – Industrial Plasma + Laser Plasma + Plasma Diagnostics** | | **D4 / S 7 – Plasma Diagnostics** | | | |

| DAY 1 : 07-Nov-2017 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **REG** | 08:00 | 09:00 | Registration | | | | |
| **INAUG** | 09:00 | 09:30 | Inaugural Function | | | | |
| **KN** | 09:30 | 10:15 | KN-01 | Address by PSSI President | | | |
| **TEA** | 10:15 | 10:45 | High Tea | | | | |
| **D1/S-01** | **10:45** | **13:00** | **SESSION – 1 : BASIC PLASMA (BP)** | | | Email | Abs# |
| S1-I-01 | 10:45 | 11:15 | Invited - 1 | 25+5 | Dr. Shantanu Karkari, IPR Gandhinagar | skarkari@ipr.res.in | |
| S1-I-02 | 11:15 | 11:45 | Invited - 2 | 25+5 | Dr. Kushal Shah, IISER, Bophal | kushals@iiserb.ac.in | |
| S1-O-01 | 11:45 | 12:00 | Oral – 1 | 10+2 | Roshan Chalise, Tribhuvan University Nepal | [BP-08; Pg. #10] | 40 |
| S1-O-02 | 12:00 | 12:15 | Oral – 2 | 10+2 | Tania Ghosh, IISER Kolkata | [BP-48; Pg. #56] | 91 |
| S1-O-03 | 12:15 | 12:30 | Oral – 3 | 10+2 | Pallavi Trivedi, IPR Gandhinagar | [BP-22; Pg. #26] | 154 |
| S1-O-04 | 12:30 | 12:45 | Oral – 4 | 10+2 | Sanghamitro Chatterjee, IIT Kanpur | [BP-75; Pg. #86] | 424 |
| S1-O-05 | 12:45 | 13:00 | Oral – 5 | 10+2 | Sarvesh Kumar, IUAC New Delhi | [BP-86; Pg. #99] | 480 |
| **LUN** | 13:00 | 14:00 | LUNCH | | | | |
| **D1 / P-01** | 14:00 | 17:00 | **POSTER – 1 (BP +PU+PP)** | | | | |
| **BYSA** | **17:00** | **19:00** | **Buti Young Scientist Award Presentations** | | | | |
| BYSA-01 | 17:00 | 17:20 | Buti Award | 15+5 | Ajay Lotekar, IIG [72/CM-06/BUTI] | Pg. # 117 | 72 |
| BYSA-02 | 17:20 | 17:40 | Buti Award | 15+5 | Niraj Kumar, CEERI [365/PU-04/BUTI] | Pg. # 486 | 365 |
| BYSA-03 | 17:40 | 18:00 | Buti Award | 15+5 | A. Mukherjee, IPR [207/BP-27/BUTI] | Pg. # 32 | 207 |
| BYSA-04 | 18:00 | 18:20 | Buti Award | 15+5 | Harish Charan, IPR [351/EP-12/BUTI] | Pg. # 155 | 351 |
| BYSA-05 | 18:20 | 18:40 | Buti Award | 15+5 | Bivash Dolai, GGCU [26/BP-05/BUTI] | Pg. # 7 | 26 |
| BYSA-06 | 18:40 | 19:00 | Buti Award | 15+5 | Deep Kumar Kuri, Tezpur University [89/LP-10/BUTI] | Pg. # 422 | 89 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **DIN** | 19:30 | 20:30 | DINNER | | | | |
| **DAY 2 : 08-Nov-2017** | | | | | | | |
| **D2 / S-02** | **09:00** | **11:15** | **SESSION – 2 : NUCLEAR FUSION (NF)** | | | | |
| S2-I-01 | 09:00 | 09:30 | Invited - 3 | 25+5 | Dr. S. R. Mohanty, CPP-IPR, Guwahati | smruti@cppipr.res.in | |
| S2-I-02 | 09:30 | 10:00 | Invited - 4 | 25+5 | Dr. Joydeep Ghosh, IPR Gandhinagar | jghosh@ipr.res.in | |
| S2-O-01 | 10:00 | 10:15 | Oral – 6 | 10+2 | Aroh Srivastava, IPR Gandhinagar | [NF-29; Pg. #229] | 62 |
| S2-O-02 | 10:15 | 10:30 | Oral – 7 | 10+2 | P. V. Subhash, ITER-India | [NF-03; Pg. #197] | 136 |
| S2-O-03 | 10:30 | 10:45 | Oral – 8 | 10+2 | Bibhu Prasad Sahoo, IPR, Gandhinagar | [NF-11; Pg. #208] | 318 |
| S2-O-04 | 10:45 | 11:00 | Oral – 9 | 10+2 | Raghuraj Singh, ITER-India | [NF-67; Pg. #278] | 330 |
| S2-O-05 | 11:00 | 11:15 | Oral – 10 | 10+2 | Harshita Raj, IPR Gandhinagar | [NF-73; Pg. #287] | 342 |
| **TEA** | 11:15 | 11:30 | TEA | | | | |
| **D2 / S-03** | **11:30** | **13:45** | **SESSION – 3 : INDUSTRIAL PLASMA/ PLASMA PROCESSING (IP+PP)** | | | | |
| S3-I-01 | 11:30 | 12:00 | Invited - 5 | 25+5 | Dr. Priyabrata Banerjee, CMERI, Durgapur | priyabratabanerjee16@gmail.com | |
| S3-I-02 | 12:00 | 12:30 | Invited - 6 | 25+5 | Dr. T.K. Thiyagarajan, BARC Mumbai | tktrajan@gmail.com | |
| S3-O-01 | 12:30 | 13:00 | Invited - 7 | 25+5 | Dr. V. L. Mathe. University of Pune | vlmathe@physics.unipune.ac.in | |
| S3-O-03 | 13:00 | 13:15 | Oral – 11 | 10+2 | Divya Deepak G, Mody University of S&T | [PP-01; Pg. #465] | 08 |
| S3-O-04 | 13:15 | 13:30 | Oral – 12 | 10+2 | Nisha Chandwani, IPR Gandhinagar | [IP-04; Pg. #179] | 160 |
| S3-O-05 | 13:30 | 13:45 | Oral – 13 | 10+2 | Krishna Enni, IISU, Trivandrum | [PP-10; Pg. #475] | 348 |
| **LUN** | 13:45 | 14:45 | LUNCH | | | | |

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|---|---|---|---|
| **D2 / PS-02** | 14:45 | 17:45 | **POSTER SESSION – 02** (NF) |
| GUZDAR | 17:45 | 18:30 | GUZDAR AWARD presentation |

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|---|---|---|---|---|---|---|---|
| **GBM** | 18:30 | 19:30 | **PSSI GBM** | | | | |
| **DIN** | 20:00 | | DINNER | | | | |

| **DAY 3 : 09-Nov-2017** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **D3 / S-04** | **09:00** | **11:15** | **SESSION – 4 : SPACE PLASMA (SA)** | | | | |
| S4-I-01 | 09:00 | 09:30 | Invited - 8 | 25+5 | Dr. Kowsik Bodi, IIT Bombay | kbodi@aero.iitb.ac.in | |
| S4-I-02 | 09:30 | 10:00 | Invited - 9 | 25+5 | Dr. Durgesh Tripathi, IUCAA, Pune | durgesh@iucaa.in | |
| S4-O-01 | 10:00 | 10:15 | Oral - 14 | 10+2 | Ajeet Kumar Maurya, BHU Varanasi | [SA-07; Pg. #507] | 39 |
| S4-O-02 | 10:15 | 10:30 | Oral - 15 | 10+2 | Suktisama Ghosh, IIGM Mumbai | [SA-39; Pg. #543] | 180 |
| S4-O-03 | 10:30 | 10:45 | Oral - 16 | 10+2 | Pralay Karmakar, Tezpur University | [SA-51; Pg. #555] | 268 |
| S4-O-04 | 10:45 | 11:00 | Oral - 17 | 10+2 | Govind Nampoothiri, ISRO, Trivandrum | [SA-14; Pg. #514] | 333 |
| S4-O-05 | 10:45 | 11:00 | Oral - 18 | 10+2 | Ramit Bhattaacharyya, PRL, Ahmedabad | [SA-54; Pg. #558] | 370 |
| **TEA** | 11:15 | 11:30 | TEA | | | | |
| **D3 / S-05** | **11:30** | **13:45** | **SESSION – 5 : LASER PLASMA + COMPUTER MODELING (LP + CM)** | | | | |
| S5-I-01 | 11:30 | 12:00 | Invited - 10 | 25+5 | Dr. A. P. Mishra, V B U, Shantiniketan | apmisra@visva-bharati.ac.in | |
| S5-I-02 | 12:00 | 12:30 | Invited - 11 | 25+5 | Dr. Shreekant Barnwal, RRCAT, Indore | sbarnwal@rrcat.gov.in | |
| S5-O-01 | 12:30 | 12:45 | Oral - 19 | 10+2 | Raghwendra Kumar, BARC Mumbai | [CM-08; Pg. #119] | 108 |
| S5-O-02 | 12:45 | 13:00 | Oral - 20 | 10+2 | Sowmiya K, Bharathiyar University | [CM-12; Pg. #123] | 173 |
| S5-O-03 | 13:00 | 13:15 | Oral - 21 | 10+2 | Parvathy Nancy, M G University, Kottayam | [LP-39; Pg. #453] | 179 |
| S5-O-04 | 13:15 | 13:30 | Oral - 22 | 10+2 | Ratan Kumar Bera, IPR Gandhinagar | [LP-21; Pg. #434] | 217 |
| S5-O-05 | 13:30 | 13:45 | Oral - 23 | 10+2 | Abdul Kalam S, University of Hyderabad | [LP-42; Pg. #458] | 375 |
| **LUN** | 13:45 | 14:45 | LUNCH | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **D3 / PS-03** | 14:45 | 17:45 | **POSTER SESSION – 03** (SA + CM + EP) | | | | |
| **D3 / S-06** | **17:45** | **19:30** | **SESSION – 6 : EXOTIC PLASMA + PULSED POWER (EP+ PU)** | | | | |
| S6-I-01 | 17:30 | 18:00 | Invited - 12 | 25+5 | Dr. Surendra Prasad, BHU Varanasi | prasads@bhu.ac.in | |
| S6-I-01 | 18:00 | 18:30 | Invited - 13 | 25+5 | Dr. Rohit Shukla, BARC Vishakapatanam | rshukla@gmail.com | |
| S6-O-01 | 18:30 | 18:45 | Oral - 24 | 10+2 | Manish Kumar Shukla, University of Delhi | [EP-15; Pg. #158] | 83 |
| S6-O-02 | 18:45 | 19:00 | Oral - 25 | 10+2 | Sandeep Kumar, IPR Gandhinagar | [EP-04; Pg. #146] | 122 |
| S6-O-03 | 19:00 | 19:15 | Oral - 26 | 10+2 | Jyotirmoy Pramanik, Kharagpur College | [EP-26; Pg. #173] | 265 |
| S6-O-03 | 19:15 | 19:30 | Oral - 27 | 10+2 | Udit Narayan Pal, CEERI Pilani | [PU-07; Pg. #491] | 486 |
| **DIN** | 19:30 | 21:00 | **CULTURAL PROGRAMME + DIRECTOR'S DINNER** | | | | |

| **DAY 4 : 10-Nov-2017** | | | | | | | |
|---|---|---|---|---|---|---|---|
| D4 / PS-04 | 09:00 | 12:00 | **POSTER SESSION – 04 (IP + LP + PD)** | | | | |
| D4/S-07 | 12:00 | 13:30 | **SESSION – 7 : PLASMA DIAGNOSTICS (PD)** | | | | |
| S7-I-01 | 12:00 | 12:30 | Invited - 14 | 25+5 | Dr. Divya Oberoi, NCRA-TIFR, Pune | div@ncra.tifr.res.in | |
| S7-I-02 | 12:30 | 13:00 | Invited - 15 | 25+5 | Dr. Rajesh Srivastava, IIT Roorkie | rajsrfph@iitr.ac.in | |
| S7-O-01 | 13:00 | 13:15 | Oral – 28 | 10+2 | Bajra Mishra, KIIT Bhubaneswar | [PD-32; Pg. #388] | 319 |
| S7-O-01 | 13:15 | 13:30 | Oral – 29 | 10+2 | Suvendu Kumar Dash, Trident Academy, Bhubaneswar | [PD-37; Pg. #393] | 328 |
| S7-O-01 | 13:30 | 13:45 | Oral – 30 | 10+2 | Anuj Ram Baitha, IIT Kanpur | [BP-67; Pg. #77] | 367 |
| S7-O-01 | 13:45 | 14:00 | Oral - 31 | 10+2 | Suman Danani, ITER-India | [PD-46; Pg. #402] | 439 |
| **LUN** | 13:30 | 14:30 | LUNCH | | | | |
| D4 / S-08 | 14:30 | 16:00 | SESSION – 8 : CONCLUDING SESSION | | | | |
| AWARDS | 15:00 | 16:00 | Distribution OF AWARDS and Concluding remarks | | | | |

## KEYNOTE ADDRESS

Dr. Anil Bhardwaj, Director PRL

## INVITED SPEAKERS

| SL | SESSION | SPEAKER | AFFILIATION | E-MAIL | TITLE OF TALK |
|---|---|---|---|---|---|
| 1 | S1-BP | Shantanu Karkari | IPR | skarkari@ipr.res.in | Experiments To Investigate Plasma Sheaths |
| 2 | S1-BP | Kushal Shah | IISER, Bhopal | kushals@iiserb.ac.in | Rf Heating And Fermi Accelerators |
| 3 | S2-NF | S R Mohanty | CPP-IPR | smruti@cppipr.res.in | Compact Fusion Neutron Sources Based On Inertial Electrostatic Confinement Concept |
| 4 | S2-NF | Joydeep Ghosh | IPR | jghosh@ipr.res.in | Recent Results From Aditya Upgrade |
| 5 | S3-IP/PP | Priyabrata Banerjee | CMERI, Durgapur | priyabratabanerjee16@gmail.com | Plasma: An Ultimate Solution In Waste Management |
| 6 | S3-IP/PP | Kowsik Bodi | IIT Bombay | kbodi@aero.iitb.ac.in | Numerical Simulation Of Electrically Conducting Fluids |
| 7 | S3-IP/PP | V. L. Mathe | Univ. Of Pune | vlmathe@physics.unipune.ac.in | Atmospheric Pressure Dielectric Barrier Discharge Plasma For Effective Degradation Of Organic Water Pollutants |
| 8 | S4-SA | Tarun Kumar Pant | VSSC | tarun_kumar@vssc.gov.in | Plasma Processes In Near Earth Space : An Emerging Perspective |
| 9 | S4-SA | Durgesh Tripathi | IUCAA | durgesh@iucaa.in | Heating And Maintaining The Solar Coronal Plasma To Million Degrees |
| 10 | S5-LP/CM | A. P. Mishra | VBU, Shantiniketan | apmisra@visva-bharati.ac.in | Non-Linear Interaction Of Waves In Plasmas : A Simulation Approach |
| 11 | S5-LP/CM | Shreekant Barnwal | RRCAT | sbarnwal@rrcat.gov.in | Capillary Discharge Soft X-Ray Laser |
| 12 | S6-EP/PU | Surendra Prasad | BHU | prasads@bhu.ac.in | Numerical Modelling Of Surface Modes At The Interface Of Air And Semi-Infinite One Dimensional Plasma Photonic Crystals |
| 13 | S6-EP/PU | Rohit Shukla | BARC Vizag | rshukla@gmail.com | Applied Compact Pulsed Power & Diagnostics Development Activities At Barc Visakhapatnam, Atchyutapuram Main Campus |
| 14 | S7-PD | Divya Oberoi | NCRA-TIFR | div@ncra.tifr.res.in | Solar Plasma Diagnostics Using Low Radio Frequency Oscillations |
| 15 | S7-PD | Rajesh Srivastava | IITR, Roorkie | rajsrfph@iitr.ac.in | Spectroscopic Diagnostic Of Argon And Krypton Plasma Using A C-R Model With Fully Relativistic Electron Impact Cross-Sections |

# BASIC PLASMA (BP)

## COMPUTER MODELING FOR PLASMA (CM)

## EXOTIC PLASMA (EP)

## INDUSTRIAL PLASMA (IP)

## NUCLEAR FUSION (NF)

# PLASMA DIAGNOSTICS (PD)

## LASER PLASMA (LP)

# PLASMA PROCESSING (PP)

## PULSED POWER (PU)

## SPACE AND ATMOSPHERIC PLASMA (SA)

# BOARD OF RESEARCH IN NUCLEAR SCIENCES(BRNS)

The BRNS is an advisory body of the Department of Atomic Energy (DAE) to recommend financial assistance to academic institutions and national laboratories.

## Main Activities

1. **Identify and fund R&D projects.**
2. **Financial support to conduct Symposia/Conferences.**
3. **Recruitment under Krishnan Research Associate ship (KSKRA).**
4. **Award research projects under DAE-OIA scheme, through DST-SERC council.**
5. **Award fellowships under DGFS - M.Tech scheme.**
6. **Award fellowships to HBNI students under DGFS- Ph.D. scheme.**
7. **Award fellowships to retired Scientists under RRF-HBC schemes, through AEC.**

# Progress in Manufacturing and Shipment to ITER

## Progress

The Base Section of the Cryostat (a 30m dia and 30 m tall vacuum vessel) manufactured L&T, Hazira.

Welding operations for final assembly is undergoing at ITER site in France. 6 segments of Cryostat Base section components totalling 1200 tonnes were shipped to ITER

## Progress

Neutron shielding blocks manufactured by Avasarala Technologies, Bangalore. About 600 such blocks delivered to Europe and Korea

## Progress

Pipe spools dispatched to ITER site in several batches. A novel concept of "pipe-in-pipe" developed to accommodate thermal expansion in buried pipes, the fabrication of which was highly challenging but in the end successfully achieved.

The Ozonators for the ITER Heat Rejection System Shipped to ITER

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