

27th National Symposium on Plasma Science and Technology

Plasma-2012

About Plasma-2012

The 27th National Symposium on Plasma science and technology is jointly organized by the Department of Physics, Pondicherry University and Plasma Science Society of India (PSSI) from 10-13 December, 2012. The scope of this symposium includes showcasing pioneering research & engineering for developing *next generation* technologies i.e. green technologies based on plasma sciences. The central theme of Plasma-2012 is application of plasma sciences in new technologies for harnessing the energy.

Challenges of Power Generation & Lighting 21st Century

Power has been recognized as a *basic human need* and it is the key to the acceleration of economic growth. India's projected power demand for the period 2021-22 is two Peta-Watts. The challenge is to generate more power than this estimated value and additionally meet the growing requirement by using alternative technology other than fossil fuels. The controlled fusion based power plants are most anticipated alternatives to the existing hydro-carbon based power plants which promise both sustainability (up to 3000 years) & environment friendliness. It has the capacity to produce energy on a large scale, using plentiful fuels, and releasing no carbon dioxide or other greenhouse gases. There are various approaches to achieve nuclear fusion. One among them is based on magnetic confinement of plasma in a tokamak, is at an advanced stage of development. The other promising future technologies for harnessing energy are - use of hydrogen as fuel and solar energy. Plasma science and plasma based technologies play significant roles in these technologies also. Plasma-2012 aims to cover most of research areas relevant to "Challenges of Power Generation & Lighting 21st Century".

ITER-The way to new energy

International Thermonuclear Experimental Reactor (ITER) is an international controlled nuclear fusion research and engineering project, which is currently

building the world's largest and most advanced experimental tokamak at Cadarache in the south of France. The ITER project aims to make the long-awaited transition from experimental studies of magnetic confinement of plasma to achieve fusion to full-scale electricity-producing fusion power plants. The project is funded and run by seven member entities — the European Union (EU), India, Japan, the People's Republic of China, Russia, South Korea and the United States. The ITER fusion reactor has been designed to produce 500 megawatts of output power for 50 megawatts of input power, or ten times the amount of energy put in (i.e. $Q \geq 10$). The machine is expected to demonstrate the principle of getting more energy out of the fusion process than is used to initiate it, something that has not been achieved with previous fusion reactors. The first commercial demonstration fusion power plant, named DEMO, is proposed to follow on from the ITER project to bring fusion energy to the commercial market. India is actively involved in fusion research and building its own fusion reactor spearheaded by Institute for Plasma Research, Gandhinagar, India.

Scientific programme

The scientific programme is a symposium spread over four days (December 10-13, 2012) consisting of plenary talks, invited topical lectures and contributed oral as well as poster presentations pertaining to following areas of Plasma Sciences and Technology:

- a. Basic Plasma (BP)
- b. Theory, Simulation and Modeling for Plasmas (CM)
- c. Nuclear Fusion and Technology (NF)
- d. Exotic Plasma, Dusty Plasma, Quark and Gluon Plasma etc. (EP)
- e. LASER and Beam Physics (LP)
- f. Application of Plasma Based Technologies (IP).
- g. Plasma Diagnostics (PD)
- h. Space & Atmospheric Plasma (SA)
- i. Any other relevant topic

Department of Physics, Pondicherry University

The main campus of the University has a sprawling area of 780 acres spread on the western side of the East Coast Road. The land gently rolls down to the beaches and is interspersed with lovely woods. Cut by a picturesque and deep ravine, this idyllic campus is on the fast-track to developing into an ideal nurturing ground for innovation and creativity. The University is fully supported by the University Grants Commission. The University is a member of the Association of Indian Universities and the Association of Commonwealth Universities. The teaching faculty consists of more than 389 active and erudite members in

different Schools, Departments and Centres. Currently, there are around 4375 students pursuing their post-graduate and doctoral programmes on the campus.

The Department of Physics came into existence in June 1987. The department offers two year M.Sc programme, five years Integrated M.Sc programme (with specialization in Lasers, Condensed Matter Physics and Electronics), integrated PhD and PhD programmes. The department has been recognized for special funding by DST-FIST and UGC – SAP. The faculty members are involved actively in research areas viz. material science: magnetic, dielectric, electronic, photonic and nano- materials; solid state ionics, spectroscopy and transport studies; non-linear dynamics, fiber optics, non-linear optics and semiconductor lasers; computational physics, biophysics, statistical mechanics, plasma physics, atomic physics, quantum field theory, multiferroics, spintronics, ion-beam and acoustic physics.

Puducherry

Puducherry is also known as the "The French Riviera of the East", the coastal town of Puducherry is known for its serene atmosphere and French ambience. Legend associates Puducherry with the great Hindu sage Agastya. Thanks to Sri Aurobindo Ashram and the nearby Auroville International Township, the city gets an unique cultural and spiritual flavor. The great Tamil poets, Mahakavi Subramania Bharathi and his disciple Sri Bharatidasan resided in Puducherry. They are the people who make the history and culture of Puducherry all the more interesting. The climate is tropical between 18° C and 38° C. The city experiences two monsoons every year, a moderate rainfall in the month of July and a heavy rainfall in the month of November. Puducherry is 160 km south of Chennai and is well connected by bus through the East Coast Road (ECR). Every 20 minutes, there is bus service from Chennai to Puducherry and hence it is the most preferred mode of transport on this route. Rail connection is available via Villupuram (Chennai – Villupuram – Puducherry).

Plasma Science Society of India (PSSI)

Established in Ahmedabad in 1978, the Plasma Science Society of India (PSSI) has been actively involved in providing a platform for interaction among academicians, scientists, and technologists in India who are working in the area of Plasma Science & Technology. PSSI has more than 1000 members and it also supports activities in the form of fellowship, awards and recognition in the area of Plasma Science & Technology in India. PSSI has been conducting its annual symposium for the last 26 years at various institutions all over India with an aim to promote and encourage research activities in Plasma Science and Technology.

PSSI awards 2012

PSSI in conjunction with external sponsors has instituted awards for outstanding research works in the area of Plasma Science & Technology. The following awards will be presented during the conference:

1. **The Buti Young Scientist Award:** Two awards of Rs. 10,000/- each will be awarded. One of these awards is exclusively for participants from universities/colleges. Upper age limit is 35 Years.

a. The application and manuscript of the work to be presented for the Buti Award should be sent to the Convener, Symposium Organizing Committee.

2. **Eight poster awards** have been instituted for the best paper in the following categories:

A. Z. H. Sholapurwala Award for fusion research: Four awards instituted by Mr. Z. H. Sholapurwala, M. D. of M/S Zeonics D & A Engg. (P) Ltd, Bangalore for Poster presentation on outstanding work on engineering aspects of fusion science and technology done in India.

B. PLASMA- 2012 poster awards: Four posters from different topics of the Symposium will be selected and awarded. More awards could be added depending on the availability of sponsors.

Note: More awards may be constituted & subjected to availability of funds.

Abstract Submission & Pre-Registration

Scientists/Researchers/Students desirous of participating in this symposium are requested to submit the abstracts & pre-register ONLINE positively by **June 25, 2012**. Please indicate your subject category while submitting the abstract. The details are available on web page <http://plasma2012.pondiuni.edu.in>. The participants can send their abstract by email to 2012plasma@gmail.com in abstract submission template.

Proceedings

In addition to the abstract book, the proceedings will be published and distributed during the symposium. All accepted papers will be published in journal after proper review. Further information will be provided in the second announcement.

Registrations

All delegates including chairperson and invited speakers are required to register for the Symposium. The registration fee structure (On or before September 30, 2012) is as follows:

| | |
|----------------------------|---------------------|
| PSSI Members | : Rs. 1500/- |
| Non Members | : Rs. 2000/- |
| Industry | : Rs. 5000/- |
| Students | : Rs. 500/-* |
| Accompanying Person | : Rs. 1000/-** |
| International participants | : Rs. 5000/- |
| October 1, onwards | : Rs. 2500/- |

*(Fee waiver is not automatically assured and will be subjected to availability of funds). ***(Food, conference dinner & conference kit will be provided)

Deadlines

| | |
|--------------------------|--|
| May 2 nd week | : 1st Announcement |
| May 25 | : Abstract submission begins |
| June 25 | : Last date for Abstract Submission |
| July 10 | : Announcement of Acceptance/Non-Acceptance of the submitted abstracts |
| August 31 | : Submission of full paper |
| September 30 | : Payment of Registration Fee without late payment fee |
| October 31 | : Acceptance of the Papers |
| December 10-13 | : Symposium |

Financial Support

Financial support towards travel and registration fee may be considered for research scholars /junior faculty members. However, financial support is limited and it will be provided on the basis of availability of funds. For further information regarding the symposium or financial support, participants may contact the organizers or the Plasma Science Society of India (PSSI).

Transaction Information

All payments should be made in favour of Plasma-2012. Bank Account details of PLASMA-2012 for payment of registration fee etc are as follows

| | |
|---|-------------------------------|
| 1. Name of Account | : PLASMA-2012 |
| 2. PLASMA-2012 Bank Accounts Number | : 6023819566 |
| 3. PLASMA-2012 Bank Accounts Type | : Current Account Type |
| 4. PLASMA-2012 , Bank Name and Branch Name | : |

INDIAN BANK, Pondicherry University Branch, (Code 01574)
Kalapet, Puducherry
Ph.: 0413-2655429

5. Plasma-2012's Bank branch's IFSC Code : **IDIB000P152**

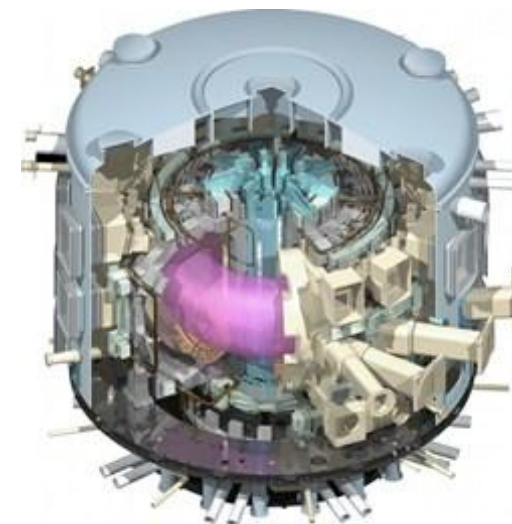
6. CIF : **3047043007**

7. Contact details of account holder (Convener) :

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CONVENER (PLASMA-2012)
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ITER-Animated view. Size may be compared with height of man standing at bottom.

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| | | | |
|------------------------|---------------|----------------------|-------------|
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Challenges of Power Generation & Lighting 21st Century



December 10-13, 2012

27th NATIONAL SYMPOSIUM ON PLASMA SCIENCE & TECHNOLOGY

Jointly organized
by
Plasma Science Society of India
&

Department Of Physics
Pondicherry University, Puducherry-605014, INDIA



**FIRST ANNOUNCEMENT AND
CALL FOR ABSTRACTS**