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**27th IAEA Fusion Energy Conference
(FEC 2018)**

**Ahmedabad, India
22–27 October 2018**

Organized by the
International Atomic Energy Agency

Hosted by the
Government of India

through the
Institute for Plasma Research

Announcement and Call for Papers

A. Introduction

The International Atomic Energy Agency (IAEA) fosters the exchange of scientific and technical results in nuclear fusion research and development through its series of Fusion Energy Conferences. The 27th IAEA Fusion Energy Conference (FEC 2018) aims to provide a forum for the discussion of key physics and technology issues as well as innovative concepts of direct relevance to the use of nuclear fusion as a source of energy.

With a number of next-step fusion devices currently being implemented — such as the International Thermonuclear Experimental Reactor (ITER) in Cadarache, France, and the Wendelstein 7-X stellarator in Greifswald, Germany — and in view of the concomitant need to demonstrate the technological feasibility of fusion power plants as well as the economic viability of this method of energy production, the fusion community is now facing new challenges. The way these challenges are addressed will dictate research orientations in the present and coming decades.

The scientific scope of FEC 2018 is, therefore, intended to reflect the priorities of this new era in fusion energy research. The conference aims to serve as a platform for sharing the results of research and development efforts in both national and international fusion experiments that have been shaped by these new priorities, and to thereby help in pinpointing worldwide advances in fusion theory, experiments, technology, engineering, safety and socio-economics. Furthermore, the conference will also set these results against the backdrop of the requirements for a net energy producing fusion device and a fusion power plant in general, and will thus help in defining the way forward.

With the participation of international organizations such as the International Fusion Energy Organization (ITER) and the European Atomic Energy Community (Euratom), as well as the collaboration of more than forty countries and several research institutes, including those working on smaller plasma devices, it is expected that this conference will, like previous conferences in the series, serve to identify possibilities and means for continuous and effective international collaboration in this area.

The 27th IAEA Fusion Energy Conference is being organized by the IAEA in cooperation with the Institute for Plasma Research, India. Previous conferences in this series were held in Salzburg (1961), Culham (1965), Novosibirsk (1968), Madison (1971), Tokyo (1974), Berchtesgaden (1976), Innsbruck (1978), Brussels (1980), Baltimore (1982), London (1984), Kyoto (1986), Nice (1988), Washington DC (1990), Würzburg (1992), Seville (1994), Montreal (1996), Yokohama (1998), Sorrento (2000), Lyon (2002), Vilamoura (2004), Chengdu (2006), Geneva (2008), Daejeon (2010), San Diego (2012), Saint Petersburg (2014) and Kyoto (2016).

B. Topics

- **OV** Overviews
- **EX** Magnetic Confinement Experiments (for the subtopics, see Annex A)
- **TH** Magnetic Confinement Theory and Modelling (for the subtopics, see Annex A)
- **PPC** Plasma Overall Performance and Control
- **IFE** Inertial Fusion Experiments and Theory
- **ICC** Innovative Confinement Concepts
- **FIP** Fusion Engineering, Integration and Power Plant Design

- **FNS** Fusion Nuclear Physics and Technology
- **MPT** Materials Physics and Technology
- **SEE** Safety, Environmental and Economic Aspects of Fusion

Papers on these topics will be considered for presentation at the FEC 2018 if they are clearly relevant to the development of fusion energy (see the attached Annex A, *Scientific Guidelines for Authors*). A Programme Committee consisting of a representative international membership will be responsible for the selection of papers, the arrangements of conference sessions and the overall scientific content of the conference. The Programme Committee will meet in April 2018 at the IAEA's Headquarters in Vienna, Austria, to finalize the technical programme of the conference.

Please be aware that because of the large interest within some countries in submitting papers, official authorities in those countries may pre-screen the papers to be submitted. Authors are advised to acquaint themselves with possible deadlines for this process at their earliest convenience.

C. Participation and Registration

All persons wishing to participate in the conference have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend. The list of invited organizations can be requested from the Conference Secretariat (see Section O).

In order to be designated by an IAEA Member State, participants are requested to send the following form(s) (as applicable) to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority):

- Participation Form (Form A): participation only; no deadline if only Form A is submitted.
- Form for Submission of a Paper (Form B): participants submitting a paper through INDICO (deadline **12 March 2018**), have to send the completed and signed Form B together with Form A to their competent national authority for onward transmission to the IAEA (Official.Mail@iaea.org) by **29 March 2018**.
- Grant Application Form (Form C): participants requesting financial support from the IAEA have to complete Form C and send it together with Form A (and Form B, if applicable) to the competent national authority for onward transmission to the IAEA (Official.Mail@iaea.org) by **29 March 2018**. Form C has to be stamped and signed by the competent national authority.

Participants who are members of an organization invited to attend, are requested to send the above form(s) through their organization to the IAEA (Official.Mail@iaea.org).

In addition, participants are requested to pre-register online through the conference website <http://www-pub.iaea.org/iaeameetings/54171/27th-IAEA-Fusion-Energy-Conference-FEC-2018>.

Participants who registered in accordance with the above procedure will receive from the IAEA further information approximately three months before the opening of the conference.

Please note that the IAEA is in a transition phase to manage the entire registration process for all regular programme meetings electronically through the new InTouch+ facility (<https://intouchplus.iaea.org>), which is the improved and expanded successor to the InTouch platform that was used in previous years for the IAEA's technical cooperation events. Through InTouch+, prospective participants will be able to apply for meetings and submit all required documents online.

National authorities will be able to use InTouch+ to review and approve these applications. Interested parties that would like to use this new facility should write to: InTouchPlus.Contact-Point@iaea.org.

29 March 2018 Deadline for submitting Form B and/or Form C
(together with Form A)

D. Submission of Synopses and Abstracts

Anyone wishing to present a paper during the conference must submit **a two-page synopsis and a one-page abstract, both in electronic format** (no paper copies), through the conference's web browser-based file submission system (IAEA-INDICO), which will be accessible through the IAEA website for the conference (Section P). The synopses and abstracts **must** be submitted through this system **between 12 February and 12 March 2018** (European time zone). No other form of submission will be accepted.

IMPORTANT: The electronically received two-page synopsis will be considered by the Programme Committee only if governmental approval (designation) has been received by **29 March 2018**. **Any given author may submit only one paper as first author for consideration.**

12 February 2018 Opening of synopsis and abstract submission
through IAEA-INDICO

12 March 2018 Deadline for submitting synopses and abstracts
through IAEA-INDICO

E. Conference Papers, Preprints and Journal Articles

E.1. Acceptance of conference papers

Authors will be notified by email by **31 May 2018** as to whether their papers have been accepted and in which format they are to be presented (overview, oral, overview poster and poster). They will also be informed of the assigned paper number and presentation session.

E.2. Dissemination routes

The IAEA will not be issuing proceedings of the 2018 IAEA Fusion Energy Conference. Instead, preprints will be made available online.

The primary publishing route is the IAEA journal *Nuclear Fusion*. Authors may, however, choose to leave the preprint as the final record.

The online conference material will be updated in 2019 with links to the *Nuclear Fusion* journal articles, and digital object identifiers will be appended to the preprints as required.

E.2.1. Submission of preprints

For every accepted regular paper a manuscript preprint must be submitted. Regular papers for which no preprint are received by the given deadline will be removed from the conference programme.

Specifications and instructions for the layout and electronic format of the full manuscript preprints as well as for the preparation of posters will be posted on the IAEA website for the conference (see Section P) by **31 May 2018**. The preprints must be submitted through the IAEA-INDICO file

submission system in the same way as the two-page synopses. IAEA-INDICO will be reopened for submission of accepted papers on **31 July 2018** (European time zone). The deadline for electronic submission of the preprints as PDF files is **27 September 2018** (European time zone). The IAEA will not accept regular submissions after the deadline.

Page limits for preprints

Summaries:	20 pages
Overviews:	12 pages
Oral presentations:	8 pages
Overview posters	12 pages
Posters:	8 pages

IMPORTANT: The system for electronic submission of preprints, IAEA-INDICO, is the sole mechanism for submission of manuscripts for regular papers for FEC 2018. Historically, up to 70% of all papers for previous FEC conferences were submitted during the last week before the submission deadline, which has led to some technical difficulties experienced by submitters due to high traffic on the web server. Authors are therefore encouraged to submit papers as early as possible.

31 May 2018	Authors notified about the acceptance of their papers and the format of presentation (specifications and instructions for the layout and electronic format of the full manuscript preprints as well as for the preparation of posters will be posted on the IAEA website for the conference)
31 July 2018	Opening of preprint submission through IAEA-INDICO
27 September 2018	Deadline for submitting preprints through IAEA-INDICO

E.2.2. Submission to *Nuclear Fusion* journal

E.2.2.1. Overview papers and summaries

Authors of overview papers and conference summary papers are kindly requested to submit their papers for publication in a special issue of the journal *Nuclear Fusion* to appear in 2019. Papers shall be submitted as soon after the conference as possible to <http://mc04.manuscriptcentral.com/nf-iaea> and by **23 November 2018** at the latest.

23 November 2018	Deadline for submitting overview papers to http://mc04.manuscriptcentral.com/nf-iaea for publication in <i>Nuclear Fusion</i>
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E.2.2.2. Regular papers

Authors of all papers accepted for presentation at the conference are encouraged to submit their papers to the journal *Nuclear Fusion*. The manuscripts must contain original work and should omit, or only briefly mention in the introduction, material that has already been published. Papers should be appropriate, in terms of style and content, for a high quality scientific journal and will be subject to the standard double-referee peer-review procedure observed by the editors of *Nuclear Fusion*. All

communications with the authors regarding details for publication and charges will be handled by the *Nuclear Fusion* editorial office (email: nf@iaea.org).

Authors will be contacted by the editorial office in **May 2018** to ascertain their intentions. Journal papers may be submitted to <http://mc04.manuscriptcentral.com/nf-iaea> at any time before **7 January 2019**.

If the eventual journal submission is not based on the preprint, the author is obliged to inform the *Nuclear Fusion* editorial office.

7 January 2019

Deadline for submitting regular papers to <http://mc04.manuscriptcentral.com/nf-iaea> for publication in *Nuclear Fusion*

F. Post-Deadline Papers

A limited number of papers will be considered for post-deadline acceptance. To be considered, a paper must meet all of the following criteria:

- It deals with subject matter appropriate to this conference;
- It presents new experimental or theoretical data, or technological developments, of sufficient importance to attract wide-ranging interest among the conference participants;
- It is submitted together with a completed Form for Submission of a Paper (Form B; see Section C) and an officially endorsed Participation Form (Form A; see Section C);
- A two-page synopsis should be sent as a file attachment by email to the IAEA's Scientific Secretariat for the conference by **20 September 2018** (to this email address: Fusion-Physics@iaea.org and as **PDF files only**). The Programme Committee will meet on **22 October 2018** to consider post-deadline submissions. Authors will be notified promptly about the acceptance or rejection of their papers through announcements posted on the IAEA website for the conference. Authors of post-deadline papers should be prepared to provide either an oral presentation or a poster. Time will be made available for three post-deadline oral presentations. The manuscripts of post-deadline papers are to be included in the proceedings and must follow the same guidelines as those that apply to regular papers (see Section E).

20 September 2018

Deadline for submitting the synopsis for post-deadline acceptance to Fusion-Physics@iaea.org (**PDF files only**), together with a completed Form for Submission of a Paper (Form B) and an officially endorsed Participation Form (Form A)

G. Expenditures

The costs for the organization of the conference are to be borne by the Host Government and the IAEA. Participants will not be charged a registration fee.

The IAEA is generally not in a position to bear the travel and other costs of participants in the conference. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Such assistance may be offered upon specific request to normally one participant per country provided that, in the IAEA's view, the participant on whose behalf assistance is requested will make an important paper to the conference. Grant applications will only be considered for authors of accepted papers.

If governments wish to apply for a grant on behalf of one of their specialists, they should submit a Grant Application Form (Form C), together with a Participation Form (Form A) and Form for Submission of a Paper (Form B), if applicable, to the IAEA by **29 March 2018** (see Section C).

Applications that do not comply with the above conditions cannot be considered.

Approved grants will be issued in the form of a lump sum payment that usually covers **only part of the cost of attendance**.

H. Distribution of Documents

A preliminary programme and Book of Abstracts will be posted on the IAEA website for the conference (see Section P) as soon as possible.

The final programme and the Book of Abstracts (**in electronic form only**) will be available free of charge upon registration at the conference. It is also planned to make available an app that will provide participants with the possibility to access the programme and other conference-related details through their smartphones.

I. Working Language

The working language of the conference will be English. No simultaneous interpretation will be provided.

J. Conference Venue and Accommodation

The conference will be held at the Mahatma Mandir conference centre in Ahmedabad, India. Participants must make their own travel and accommodation arrangements. Hotels offering a reduced rate for conference participants will be listed on the Host organization website for the conference (see Section P). Please note that the IAEA is not in a position to assist participants with hotel bookings, nor can the IAEA assume responsibility for paying cancellation fees or for re-booking and no shows.

Detailed information on accommodation and other administrative details will be made available on the conference websites (see Section P) well in advance of the conference.

K. Visas

Officially designated participants will require a **business visa** for India and need to submit the necessary applications to the nearest diplomatic or consular representative of India as early as possible (please note that it can take **more than three months** to obtain a visa). Further information will be provided on the conference websites (see Section P).

L. Satellite Meetings

Deadline for booking requests: **14 September 2018**.

Details on how to arrange for room reservations will soon be made available on the host organization's website for the conference (see Section P).

M. Exhibitions

Space will be available for commercial vendors' displays/exhibits during the conference (further information will be made available in due course on the conference websites).

N. Key Dates and Deadlines

FORMS B AND C

29 March 2018 Deadline for submitting Form B and/or Form C (together with Form A); no deadline if only Form A is submitted (see Section C)

PAPER

12 February 2018 Opening of synopsis and abstract submission through IAEA-INDICO

12 March 2018 Deadline for submitting synopses and abstracts through IAEA-INDICO

31 May 2018 Authors notified about the acceptance of their papers and the format of presentation (specifications and instructions for the layout and electronic format of the full manuscript preprints as well as for the preparation of posters will be posted on the IAEA website for the conference)

31 July 2018 Opening of preprint submission through IAEA-INDICO

20 September 2018 Deadline for submitting the synopsis for post-deadline acceptance to Fusion-Physics@iaea.org (**PDF files only**), together with a completed Form for Submission of a Paper (Form B) and an officially endorsed Participation Form (Form A)

27 September 2018 Deadline for submitting preprints through IAEA-INDICO

PUBLICATION

23 November 2018 Deadline for submitting overview papers to <http://mc04.manuscriptcentral.com/nf-iaea> for publication in *Nuclear Fusion*

7 January 2019 Deadline for submitting regular papers to <http://mc04.manuscriptcentral.com/nf-iaea> for publication in *Nuclear Fusion*

VISA APPLICATION

15 July 2018 Deadline for submitting visa applications (recommended)

O. Conference Secretariat

Subsequent correspondence on scientific matters shall be sent to the Scientific Secretary and correspondence on administrative matters to the IAEA's Conference Services Section.

IAEA Scientific Secretary:

Ms Sehila González de Vicente
Physics Section
Division of Physical and Chemical Sciences
Department of Nuclear Sciences and Applications
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA

Tel.: +43 1 2600 21753
Contact email address (and also for submission of post-deadline papers): Fusion-Physics@iaea.org

IAEA Administration and Organization:

Ms Martina Khaelss
Ref.: CN-258
Conference Services Section
Division of Conference and Document Services
Department of Management
International Atomic Energy Agency
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AUSTRIA

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Email: M.Khaelss@iaea.org

Host Government officials:

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GUJARAT 382428
INDIA

Tel.: +91 79 2396 2000
Fax: +91 79 2396 2277
Email: fec2018@ipr.res.in

Mr Daniel Raju
Institute for Plasma Research
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GUJARAT 382428
INDIA

Tel.: +91 79 2396 2000
Fax: +91 79 2396 2277
Email: fec2018@ipr.res.in

P. Conference Websites

Participants are encouraged to visit the two conference websites regularly to check for new or updated information. The conference website addresses are:

IAEA website:
<https://www.iaea.org/events/fec-2018>

Host organization website:
<http://www.fec2018.in/>

ANNEX A — SCIENTIFIC GUIDELINES FOR AUTHORS

1. Papers must present original and previously unreported work on any of the conference topics listed below. In particular, papers on subjects covered by the same authors at previous IAEA conferences must only present results obtained since those already reported, and this should be indicated in the extended synopsis.

2. The Programme Committee will base its decision to accept papers for presentation at the conference on the two-page extended synopsis provided by authors. This should therefore outline, in sufficient detail, the purpose of the work and the results obtained.

3. The Programme Committee welcomes papers that cross the boundaries of one topic area. Therefore, authors are permitted to specify more than one topic.

4. Papers covering general engineering work not specific to thermonuclear fusion should not be submitted for this conference. Research and development results (e.g. fabrication of a specific component) should be put in the context of what is required for fusion in general and should mention what the challenges are, why some solutions were chosen, and what the implications are.

5. Topic areas:

- **OV** Overviews
- **EXC** Magnetic Confinement Experiments: Confinement
- **EXS** Magnetic Confinement Experiments: Stability
- **EXW** Magnetic Confinement Experiments: Wave–plasma interactions; current drive; heating; energetic particles
- **EXD** Magnetic Confinement Experiments: Plasma–material interactions; divertors; limiters; scrape-off layer (SOL)
- **THC** Magnetic Confinement Theory and Modelling: Confinement
- **THS** Magnetic Confinement Theory and Modelling: Stability
- **THW** Magnetic Confinement Theory and Modelling: Wave–plasma interactions; current drive; heating; energetic particles
- **THD** Magnetic Confinement Theory and Modelling: Plasma–material interactions; divertors, limiters, SOL
- **PPC** Plasma Overall Performance and Control
- **IFE** Inertial Fusion Experiments and Theory
- **ICC** Innovative Confinement Concepts
- **FIP** Fusion Engineering, Integration and Power Plant Design
- **FNS** Fusion Nuclear Physics and Technology
- **MPT** Materials Physics and Technology
- **SEE** Safety, Environmental and Economic Aspects of Fusion

6. Overview papers will be considered in the following categories:

- A review of studies in one of the above topic areas,
- An overview of significant results from a facility.

7. If a result described in one paper depended on significant advances in diagnostic capabilities, the diagnostic technique may be discussed as part of the paper.

8. The following guidelines can be followed to determine whether papers including discussions of new fusion concepts should be submitted under EX-, TH-, or ICC. If the purpose of the paper is primarily to expose a new fusion concept, it should be identified as ICC even if a moderate amount of theory and/or data are included. If a paper primarily presents new theory, it should be identified as TH-. If it primarily presents new experimental results, it should be identified as EX-. The Programme Committee may indicate an appropriate topic for the paper in cases of ambiguity or mismatch.

Participation Form

27th IAEA Fusion Energy Conference

Ahmedabad, India

22–27 October 2018

To be completed by the participant and sent to the competent official authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA), Vienna International Centre, PO Box 100, 1400 Vienna, Austria, either electronically by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed).

Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

Family name: (e.g. Smith)		First name(s): (e.g. John)		Mr/Ms
Institution:				
Full address:				
For urgent communications please indicate:		Tel.:		
		Fax:		
		Email:		
Nationality:		Designating Government or organization:		
Mailing address (if different from address indicated above):				
Do you intend to submit a paper?		Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Would you prefer to present your paper as a poster?		Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Title:				

Form for Submission of a Paper

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22–27 October 2018

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Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

Deadline for receipt by IAEA through official channels: 29 March 2018

Title of the paper:		
Abstract id (INDICO):		
Family name(s) and first name(s) of all author(s): e.g. Smith, John	Scientific establishment(s) in which the work has been carried out	City/Country
1.		
2.		
3.		
Family name and first name(s) of author presenting the paper: e.g. Smith, John	Mailing address:	
Mr/Ms:		
For urgent communications please indicate	Tel.:	
Email:	Fax:	

I hereby agree to assign to the International Atomic Energy Agency (IAEA):

- the copyright; or
- the non-exclusive, world-wide, free-of-charge licence (this option is only for those authors whose parent institution does not allow them to transfer the copyright for work carried out in that institution) granting the IAEA world rights for the use of the aforementioned material in this and any future editions of the publication, in all languages, and in all formats available now, or to be developed in the future (digital formats, hardcopy etc.).

Please note: If granting the licence mentioned above, please supply any copyright acknowledgement text required.

Furthermore, I herewith declare:

- that the material submitted to the IAEA is original, except for such excerpts from copyrighted works as may be included with the permission of the copyright holder thereof, has been written by the stated authors, has not been published before, and is not under consideration for publication by another entity;
- that any permissions and rights to publish required for third-party content, including but not limited to Figures and Tables, have been obtained, that all published material is correctly referenced; and
- that the material submitted to the IAEA does not contain any libellous or other unlawful statements and does not contain any materials that violate any personal or proprietary rights of any person or entity.

Date:

Signature of main author:

Grant Application Form

27th IAEA Fusion Energy Conference

Ahmedabad, India

22–27 October 2018

To be completed by the applicant and sent to the competent official authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA), Vienna International Centre, PO Box 100, 1400 Vienna, Austria, either electronically by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed).

Deadline for receipt by IAEA through official channels: 29 March 2018

Family name: (e.g. Smith)	First name(s): (e.g. John)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yy/mm/dd):	Nationality:	

1. Education (post-secondary):

Name and place of institution	Field of study	Diploma or Degree	Years attended from	to

2. Recent employment record (Starting with your present post):

Name and place of employer/ organization	Title of your position	Type of work	Years worked from	to

3. Description of work performed over the last three years:

4. Institute's/Member State's programme in field of conference:

Date: **Signature of applicant:** _____

Date: **Name, signature and stamp of Ministry of Foreign Affairs, Permanent Mission to the IAEA or the National Atomic Energy Authority** _____