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International Atomic Energy Agency

Agence internationale de l'énergie atomique

Международное агентство по атомной энергии

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The Secretariat of the International Atomic Energy Agency (IAEA) presents its compliments to the IAEA's Member States and has the honour to draw their attention to the **Technical Meeting on Advances in Post-Irradiation Examination Techniques for Power Reactor Irradiated Fuels and Innovative Fuels** (hereinafter referred to as "event") to be held in Warsaw, Poland from **16 to 18 September 2020**.

The purpose of the event is to exchange information on recent experience and ongoing and future improvements in the field of post-irradiation examination techniques for power reactor irradiated fuels and innovative fuels.

The attached Information Sheet provides further details of the event.

The event will be held in English.

Member States are invited to designate one or more participants to represent the Government at this event. Member States are strongly encouraged to identify suitable women participants.

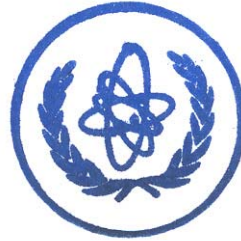
The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event. The application for financial support should be made at the time of designating the participant(s) using the attached Grant Application Form (Form C).

It should be noted that compensation is not payable by the IAEA for any damage to or loss of personal property. The IAEA also does not provide health insurance coverage for participants in IAEA events. Arrangements for private insurance coverage on an individual basis should therefore be made. The IAEA will, however, provide insurance coverage for accidents and illnesses that clearly result from any work performed for the IAEA.

Designations should be submitted to the IAEA through the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) not later than **15 June 2020** using the attached Participation Form (Form A). Completed and authorized Participation Forms should be sent either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Copies should be sent by email to the Scientific Secretary of the event, Mr Ki Seob Sim, Division of Nuclear Fuel Cycle and Waste Technology, Department of Nuclear Energy (Email: [K.S.Sim@iaea.org](mailto:K.S.Sim@iaea.org)), and to the Administrative Secretary, Ms Nisha Nath-Sirimalwatta (Email: [N.Nath-Sirimalwatta@iaea.org](mailto:N.Nath-Sirimalwatta@iaea.org)). The Scientific Secretary of the event will liaise with the participants directly concerning further arrangements, including travel details, as appropriate, once the official designations have been received.

Should Governments wish, in addition, to appoint one or more observers to assist and advise the designated participants, they are kindly requested to inform the IAEA of the names and contact details of any such observers by the above date. In accordance with the established rules, Governments are expected to bear the cost of attendance of any observers they may send to IAEA events. Compensation is not payable by the IAEA for any damage to or loss of observers' personal property or for illness, injury or death occurring while travelling to or in connection with their attendance at IAEA events.

The Secretariat of the International Atomic Energy Agency avails itself of this opportunity to renew to the IAEA's Member States the assurances of its highest consideration.



2020-05-15

Enclosures: Information Sheet

Participation Form (Form A)

Form for Submission of a Paper (Form B)

Grant Application Form (Form C)

Instructions for the Preparation of Papers



# **Technical Meeting on Advances in Post-Irradiation Examination Techniques for Power Reactor Irradiated Fuels and Innovative Fuels**

**Hosted by the**

**Government of Poland**

**through the**

**Warsaw University of Technology**

**Warsaw, Poland**

**16–18 September 2020**

**Ref. No.: EVT1905299**

## **Information Sheet**

### **Introduction**

For decades the IAEA has supported Member States in various aspects to improve the reliability of fuel for power reactors. Post-irradiation examinations (PIEs), accomplished by destructive fuel examinations in hot cells and non-destructive fuel examinations in both hot cells and spent fuel pool, are essential for the understanding of fuel behaviour and its further improvement with respect to the performance and safety in the reactor. The IAEA has fostered the exchange of information on advances in PIE techniques via Coordinated Research Projects (CRPs), Technical Meetings or equivalent, and edited several technical documents.

In the last decade, fuel communities in Member States have pursued R&D to advance PIE technologies in order to ensure fuel reliability under operational states including high burnup operation and power manoeuvring operation; to enhance fuel safety through understanding of fuel and material degradation and failure mechanisms under accident conditions; to support the development of innovative fuels and materials (e.g. accident tolerant fuel (ATF), fast reactor (FR) fuels, GEN-IV fuels, small modular

reactor (SMR) fuels, inert matrix fuel (IMF)); and to support the development and validation of computer codes (e.g. 3D analysis codes, multi-scale codes).

Recognizing the importance of these topics, the members of the Technical Working Group on Fuel Performance and Technology (TWG-FPT) recommended at the TWG-FPT plenary meeting in 2018 to organize a Technical Meeting on Advances in Post-Irradiation Examination Techniques for Water Reactor and Innovative Fuels.

This Technical Meeting in September 2020 will take place in Warsaw, Poland in conjunction with the European Materials Research Society (EMRS) conference, that is, this Technical Meeting will take place for three days (16–18 September 2020), following EMRS Symposium on Nuclear Materials (14–15 September 2020) under the frame of the 2020 Fall Meeting of EMRS.

## **Objectives**

The purpose of the event is to exchange information on recent experience and ongoing and future improvements in the field of post-irradiation examination techniques for power reactor irradiated fuels and innovative fuels.

## **Expected Outputs**

The event will provide the basis for the preparation of a report including the proceedings of papers presented at the event, recommendations for future activities to support the development and qualification of materials for existing and new reactor fuels, cladding, in-core structural components and coolant.

## **Target Audience**

The event is intended for staff members of nuclear fuel research facilities (including PIE facilities), nuclear power plants, utilities, regulatory bodies, universities and other organizations engaged in the design, operation and fabrication of existing and innovative power-reactor fuels. Participants should be actively involved in the subject of the event and have considerable experience of the relevant activities.

## **Working Language(s)**

English

## Structure

This event will comprise four main technical sessions with the first divided into three sub-sessions as follows.

Sessions:

1. Materials for existing reactor fuels, cladding, in-core structural components and coolant:
  - a. Advances in existing and new pool side inspection (non-destructive) techniques at power reactor site (in-bay inspections)
  - b. Advances in existing and new root cause investigation at power reactors, hot cell sites and laboratories (at research facilities and universities),
  - c. Advances in existing and new hot cell examination (NDE and DE) techniques remote from power reactor sites.
2. Materials for innovative reactor fuels, cladding, in-core structural components and coolant
3. PIE support to code development and validation
4. PIE facility improvements and safe transportation of irradiated materials.

Each technical session will include a group discussion to discuss specific issues related to the subject items of the session.

## Topics

Under each session above, the following topics or equivalent can be discussed. Note that topics are not limited to the listed items and can be expanded.

1. Materials for existing reactor fuels, cladding, in-core structural components and coolant:
  - a. Advances in existing and new pool side inspection (non-destructive) techniques at power reactor site (in-bay inspections):
    - Visual inspection (e.g. oxide layer measurements by optical testing, infrared camera technology, profilometry),
    - Non-destructive defect or layer detection techniques (e.g. ultrasonic testing (UT) and eddy-current testing (ET), sipping and sniffing testing),
    - Root cause investigations (e.g. particle retrieval, sample coatings).
  - b. Advances in existing and new root cause investigation at hot cell sites and laboratories (at research facilities and universities):
    - Non-destructive inspection (e.g. UT, ET, gamma scanning, tomography, acoustic microscopy, diffuse reflection spectroscopy, gamma tomography),
    - Preparation of samples and subsamples for lab investigation (e.g. focused ion beam or mechanical micro fragmentation),
    - Destructive inspection (e.g. x-ray absorption, X-ray powder diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), TIMS, mechanical testing, metallography, laser flash, inductively coupled plasma

- mass spectrometry (ICPMS), inductively coupled plasma optical emission spectrometry (ICPOES), SIMS, other analytical techniques).
- c. Advances in existing and new hot cell examination (NDE and DE) techniques remote from power reactor sites
    - Non-destructive inspection (e.g. UT, ET, gamma scanning, tomography, acoustic microscopy, diffuse reflection spectroscopy, gamma tomography),
    - Preparation of samples and subsamples for lab destructive investigation (e.g. focused ion beam or mechanical micro fragmentation),
    - Destructive inspection (e.g. x-ray absorption, XRD, SEM, TEM, TIMS, mechanical testing, metallography, laser flash, ICPMS, ICPOES, SIMS, other analytical techniques).
  2. Materials for innovative reactor fuels, cladding, in-core structural components and coolant:
    - a. Same as above, including fabrication reports and pre-irradiation inspection techniques (NDE, DE),
    - b. Specific hot cell, glove box atmosphere (inert gas hot cells for molten salt reactor, uranium-nitride (UN) fuel, uranium-carbide (UC) fuel, metallic fuel),
    - c. Alpha and tritium tight systems (e.g. portals, penetration sealing technology).
  3. PIE support to code development and validation:
    - a. Safety analysis codes (operational states and accident conditions),
    - b. Fuel performance codes (gap data and analysis),
    - c. Knowledge gap assessments to provide required data to the fuel modellers.
  4. PIE facility improvements and safe transportation of irradiated materials:
    - a. Upgrade the use of existing units,
    - b. Equipment development and capability maintenance and financial investment,
    - c. Collaborate with universities, other research facilities and vendors/operators/regulators,
    - d. Sample packaging and irradiated material disposition after PIE,
    - e. Transportation logistics and improvements.

## Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **15 June 2020**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by the above deadline.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

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

be able to apply for events 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](mailto:InTouchPlus.Contact-Point@iaea.org).

The event is, in principle, open to all officially designated persons. The IAEA, however, reserves the right to limit participation in case this becomes necessary due to limitations imposed by the available seating capacity. It is therefore recommended that interested persons take the necessary steps to obtain their official designation as early as possible.

## Papers and Presentations

Participants are expected to give presentations falling within the scope of topics listed above. Approximately 30 minutes will be allotted for each presentation, including floor discussion.

Participants who wish to give presentations are requested to submit an abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should be in A4 page format, should not be more than one page and should not exceed 400 words. It should be sent electronically to Mr Ki Seob Sim, the Scientific Secretary of the event (see contact details below), not later than **15 June 2020**.

In addition, participants have to submit the abstract together with the **Participation Form (Form A)** and the attached **Form for Submission of a Paper (Form B)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or their organization for onward transmission to the IAEA not later than **15 June 2020**.

The submission of a full paper implies that the author intends to participate in the event if it is accepted. Full papers should be **no more than 5 pages** including figures and tables. Full papers should be prepared according to the guidelines provided in the enclosed **Instructions for the Preparation of Papers** and should be submitted to Scientific Secretary not later than **30 July 2020**. Final versions of the full papers should be submitted by **30 August 2020**, following the resolution of comments provided by the organizational committee.

In addition to the master (paper) copy, an electronic version of the paper (Word file) is necessary to ensure quality and timely issuance of the proceedings to be prepared and distributed in electronic format.

On the webpage of this event (<https://nucleus.iaea.org/sites/connect/NFEpublic/Pages/tm2.aspx>) updated news regarding the event will be posted and the electronic versions of the submitted papers will be available.

## Visas

Participants who require a visa to enter Poland should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of Poland.

## Local Arrangements

This Technical Meeting will be held as a joint event with the European Materials Research Society (EMRS). The EMRS Symposium on Nuclear Materials will take place in 14–15 September 2020, and this Technical Meeting will be followed in 16–18 September 2020 at the same venue (**Warsaw University of Technology, Poland**).

All the material for the event, including the agenda and information on the exact venue as well as local arrangements, will be sent to the designated participants once the completed Participation Form (Form A) has been received.

Please note this event may be cancelled or postponed if travel restrictions due to COVID-19 are still in place and if the number of expected participants is too low.

## Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made using the **Grant Application Form (Form C)**, which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **15 June 2020**.

## IAEA Contacts

### Scientific Secretary

#### Mr Ki Seob Sim

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Email: [K.S.Sim@iaea.org](mailto:K.S.Sim@iaea.org)



**Administrative Secretary**

**Ms Nisha Nath-Sirimalwatta**

Division of Nuclear Fuel Cycle and Waste Technology

Department of Nuclear Energy

International Atomic Energy Agency

Vienna International Centre

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Tel.: +43 1 2600 22767

Fax: +43 1 26007

Email: [N.Nath-Sirimalwatta@iaea.org](mailto:N.Nath-Sirimalwatta@iaea.org)

Subsequent correspondence on scientific matters should be sent to the Scientific Secretary and correspondence on other matters related to the event to the Administrative Secretary.



# Participation Form

## Technical Meeting on Advances in Post-Irradiation Examination Techniques for Power Reactor Irradiated Fuels and Innovative Fuels

Warsaw, Poland

16–18 September 2020

To be completed by the participant and sent to the competent national 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) either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary [K.S.Sim@iaea.org](mailto:K.S.Sim@iaea.org) and to the Administrative Secretary [N.Nath-Sirimalwatta@iaea.org](mailto:N.Nath-Sirimalwatta@iaea.org). Please attach a passport copy or other document of identification (ID).

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: 15 June 2020**

|  |  |       |
|--|--|-------|
| Family name(s): (same as in passport)  | First name(s): (same as in passport)   | Mr/Ms |
| Institution:   |  |       |
| Full address:  |  |       |
| Tel. (Fax):  |  |       |
| Email:   |  |       |
| Nationality:   | Representing following Member State/non-Member State/entity or invited organization: |       |
| If/as applicable:<br>Do you intend to submit a paper?                      Yes <input type="checkbox"/> No <input type="checkbox"/><br>Would you prefer to present your paper as a poster?      Yes <input type="checkbox"/> No <input type="checkbox"/><br>Title: |  |       |



# Form for Submission of a Paper

## Technical Meeting on Advances in Post-Irradiation Examination Techniques for Power Reactor Irradiated Fuels and Innovative Fuels

**Warsaw, Poland**

**16–18 September 2020**

To be completed by the participant and sent to the competent national 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) either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary [K.S.Sim@iaea.org](mailto:K.S.Sim@iaea.org) and to the Administrative Secretary [N.Nath-Sirimalwatta@iaea.org](mailto:N.Nath-Sirimalwatta@iaea.org).

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: 15 June 2020**

|  |  |              |
|--|--|--------------|
| Title of the paper:  |  |              |
| If applicable: Abstract ID in IAEA-INDICO:   |  |              |
| Family name(s) and first name(s) of all author(s) (same as in passport(s):             | Scientific establishment(s) in which the work has been carried out | City/Country |
| 1.   |  |              |
| 2.   |  |              |
| 3.   |  |              |
| Family name(s) and first name(s) of author presenting the paper (same as in passport): | Mr/Ms:   |              |
| Mailing address:   |  |              |
| Tel. (Fax):  |  |              |
| Email:   |  |              |

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

- the copyright; or
- the non-exclusive, worldwide, 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, hard copy 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 holders 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

## Technical Meeting on Advances in Post-Irradiation Examination Techniques for Power Reactor Irradiated Fuels and Innovative Fuels

Warsaw, Poland

16–18 September 2020

To be completed by the applicant and sent to the competent national 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) either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary [K.S.Sim@iaea.org](mailto:K.S.Sim@iaea.org) and to the Administrative Secretary [N.Nath-Sirimalwatta@iaea.org](mailto:N.Nath-Sirimalwatta@iaea.org).

**Deadline for receipt by IAEA through official channels: 15 June 2020**

|                                       |                                      |        |
|---------------------------------------|--------------------------------------|--------|
| Family name(s): (same as in passport) | First name(s): (same as in passport) | 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<br>from to |  |
|-------------------------------|----------------|-------------------|---------------------------|--|
|                               |                |                   |                           |  |
|                               |                |                   |                           |  |
|                               |                |                   |                           |  |

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

| Name and place of employer/<br>organization | Title of your<br>position | Type of work | Years worked<br>from to |  |
|---|---------------------------|--------------|-------------------------|--|
|   |                           |              |                         |  |
|   |                           |              |                         |  |
|   |                           |              |                         |  |

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

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

Date: Signature of applicant: \_\_\_\_\_

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





# Instructions for the Preparation of Papers

## Technical Meeting on Advances in Post-Irradiation Examination Techniques for Power Reactor Irradiated Fuels and Innovative Fuels

Warsaw, Poland

16–18 September 2020

**PAPER TITLE IN TIMES NEW ROMAN 12 POINT BOLD CAPITALS, INDENTED BY 1 cm WITH NO MORE THAN 40 CHARACTERS PER LINE INCLUDING SPACES**  
*Subtitle if needed in Times New Roman 12 point bold italic, sentence case*

A.N. AUTHOR  
Organization  
Town/City, Country  
Email: address@correspondingauthor.com

A.N. OTHER-AUTHOR  
Organization  
Town/City, Country

### **Abstract**

This is an example of how to format an abstract. The title is Times New Roman 10 point bold, indented by 1 cm. The text is Times New Roman 9 point, with a first line indent of 1 cm. The abstract is a single paragraph which may be up to 300 words long. It should not contain information not included in the paper. The abstract may not contain references, equations or the word 'we'. Write 'the paper', not 'this paper'.

### 1. INTRODUCTION

This is an example of how a paper for the Proceedings Series should be formatted. The text above shows how the running head, title, subtitle (if applicable), author names and affiliations, and abstracts should be formatted. The heading immediately above this paragraph is a first level paper heading; it is Times New Roman 10 point regular capitals. The body text of the paper is Times New Roman 10 point regular, with a first line indent of 1 cm.

Please use these examples to format your paper. Applying the styles saved in this document to your text should format it correctly. Your word processing software may also contain a tool such as a 'format painter' that will enable you to copy the formatting from the example text to your own text. Alternatively, the information given in this template should enable to select the correct format for each section.

### 2. ORIGINALITY, COPYRIGHT AND PUBLICATION

The text of a paper submitted to this conference must be original with any material from copyrighted works (including illustrations, tables, and text quotations) included with the permission of the copyright holder. The contributor should, therefore, make sure that any permissions and rights required to publish any third-party content have been obtained and that all published material is correctly referenced.

The content of a paper is expected to have been written by the stated authors and the paper itself must not have been published before and be under consideration for publication by another entity (if this is the case please contact the Conference Organizer for further information). All papers will be scanned to ensure originality; if they are found to contain non-original text, only their abstract will be included in the proceedings.

Papers will only be included in the proceedings if the IAEA Form B has been submitted prior to the conference. If the Form B is not received, only the abstract may be included in the proceedings, but this may also be omitted.

### 3. HEADINGS AND SUBHEADINGS

If you need to subdivide the sections of your paper, use the headings shown below. You can use second and third level paper headings. To subdivide further, please use lists numbered (a), (b), and so on, but this is usually not necessary in a paper of normal length.

#### 3.1. Second level paper heading

A second level paper heading is Times New Roman 10 point bold, in sentence case.

##### 3.1.1. Third level paper heading

A third level paper heading is Times New Roman 10 point italic, in sentence case.

### 4. PAGE AND SECTION BREAKS

If you need to move a heading to the following page, please use a page break (usually found in word processing software under the 'insert/page break' menu. Please do not press return several times to move text onto a new page.

### 5. FORMATTING OF TABLES

Tables must be numbered consecutively and include a table heading. There is no full stop at the end of the heading. IAEA style is to use table borders and lines sparingly. Tables must be mentioned (called out) in the text and should be inserted following the end of the paragraph in which they are mentioned, or on the next page if there is not enough space. Tables are formatted in Times New Roman 9 point regular. For an example, see Table 1.

TABLE 1. EXAMPLE TABLE

| Column 1        | Column 2    | Column 3    |
|-----------------|-------------|-------------|
| Align text left | Centre text | Centre text |
| Align text left | Centre text | Centre text |

### 6. FORMATTING OF FIGURES

The figures you use in your publication must be original. If they have been published elsewhere (even in other papers authored by you or one of your co-authors) they cannot be used unless a permission is obtained and sent with the paper.

The figures must be numbered consecutively and mentioned in the text in the order in which they are numbered, using the abbreviation Fig. They should be inserted into the paper without a border and immediately below the paragraph in which they are mentioned, or on the next page if there is no space. They should have a caption, which is set in Times New Roman 9 point italic; the caption should be centred if it is a single line or aligned left if it is two lines or more long. An example of a caption can be seen below Fig. 1. Note the capitalization of 'Fig.' in the figure caption.

## 7. REFERENCES

In accordance with good academic practice, reference sources should be cited in the text to support the assertions it contains. IAEA style is to use numbered references in square brackets. There are different formats for sources such as books [1], internal reports [2], personal communication [3], unpublished data [4], single chapters from books [5], journal articles [6], websites and on-line databases [7], papers from a proceedings [8], presentations including slides and handouts [9], and INFCIRCs [10]. Sources ‘in preparation’ or ‘in press’ use these terms in place of the year. Titles are given in their original languages if these use Latin alphabets, or translated into English for languages that do not use Latin alphabets. Please see the reference list below for examples of how to format the sources numbered [1–11]. The text in the reference list is Times New Roman 9 point regular.

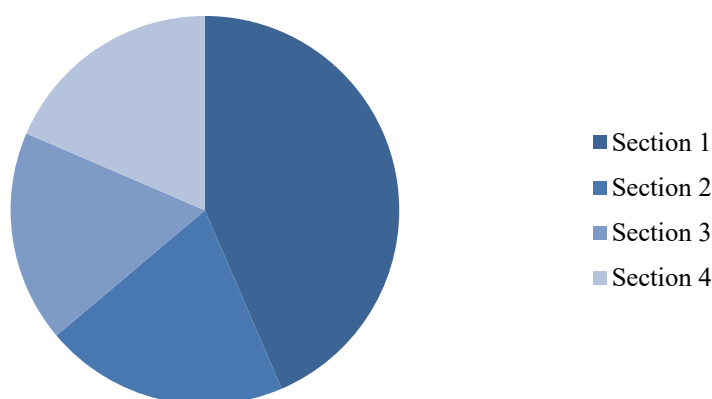


FIG. 1. Chart showing the number of words in each section of this example paper.

## 8. BIBLIOGRAPHY

A bibliography is an optional section. If a source is not cited in the text but may nevertheless be of interest to the reader, it can be included in a bibliography, which follows the reference list. Sources that appear in the reference list should not be included in the bibliography. Please see the example bibliography at the end of this paper. The text in the bibliography is Times New Roman 9 point regular.

## 9. FURTHER INFORMATION

### 9.1 Author affiliation

Put the email address after the affiliation of the corresponding author, whether he or she is the first author or not. Please put the name of the authors’ organization(s) in English. Do not give the organization’s street address or postal code. For international organizations, no country is given. Please use the name of the country as it is given in the IAEA Member State list (for example, use ‘Russian Federation’, not ‘Russia’).

If there is a long list of author names and some of them are from the same organizations or same States, please seek advice from the conference organizer on how to format such a list to save space.

### 9.2 Bulleted lists

If you use a bulleted list in your paper, please format it as below:

- First bullet point;
- Section bullet point;

- Third bullet point.

If you need to use subpoints, please use this format:

- First bullet point.
- Section bullet point.
  - First subpoint;
  - Second subpoint.
- Third bullet point.

Please note the punctuation at the end of the points.

### 9.3 Numbered lists

If you use a numbered list in your paper, please format it as below, noting the punctuation at the end of the points:

- (a) First bullet point.
- (b) Section bullet point.
  - (i) First subpoint;
  - (ii) Second subpoint.
- (c) Third bullet point.

Please use (a), (b), etc., unless your text refers to the points elsewhere as ‘the first point’, ‘the second point’ and so on — in this case, please use (1), (2), etc.

### 9.4 General formatting

Only the font Times New Roman should be used in the paper. The font Symbol should never be used in files intended for publication as it is not a Unicode font and letters may change during production (for example,  $\mu\text{Sv}$  may print as  $\text{mSv}$  if the character  $\mu$  is inserted in Symbol font).

Underlining should not be used. Bold and italic may be used for emphasis but should be used sparingly. Paragraph line spacing is 12 point for 9 point text, 13 point for 10 point text and 14 point for 12 point text, as used in this example paper. Only one space is used following a full stop.

Footnotes<sup>1</sup> should be used only where necessary. They should be inserted at the end of each page, and not at the end of the paper as endnotes.

## ACKNOWLEDGEMENTS

The heading of the acknowledgements section is Times New Roman 10 point bold capitals, centred. The acknowledgements section is an optional section and can be used to list funding bodies and other sponsors of the research, and to mention people who supported the research but whose contribution was not of a type to merit authorship of the paper.

## REFERENCES

- [1] AUTHOR, A., Book Title in Title Case, Series No. if applicable, Publisher, Place of Publication (Year).
- [2] AUTHOR, A., Internal Report Title in Title Case, internal report, Organization, Location, Year.
- [3] LETTER-WRITER, A., Organization, personal communication, Year.
- [4] RESEARCHER, A., Organization, unpublished data.

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<sup>1</sup> Text in a footnote is Times New Roman 9 point regular.

- [5] CHAPTER-AUTHOR, A., "Title of chapter in sentence case", Book Title in Title Case, Publisher, Place of Publication (Year).
- [6] AUTHOR, A., AUTHOR, B., AUTHOR, C., Journal article title in sentence case, Abb. J. Title 1 2 (Year) 120–123.
- [7] AUTHOR, A., Title of Web Page or On-line Database in Title Case (Year),  
www.webpage.com/exact-subpage-being-cited
- [8] AUTHOR, A., "Paper title in sentence case", Conference Title in Title Case (Proc. Int. Conf. Place of Conference, year), Publisher, Place of Publication (Year).
- [9] PRESENTER, A., "Title of presentation in sentence case", Paper No., paper presented at Organization seminar on subject, Location, year.
- [10] Title of INFCIRC in Title Case, INFCIRC No., IAEA, Vienna (Year).

## **BIBLIOGRAPHY**

AUTHOR, A., Book Title in Title Case, Series No. if applicable, Publisher, Place of Publication (Year).  
 — Title of Book by Same Author in Title Case, Series No. if applicable, Publisher, Place of Publication (Year).

AUTHOR, A., AUTHOR, B., Book Title in Title Case, Series No. if applicable, Publisher, Place of Publication (Year).

ORGANIZATION A (Location)

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 Book Title in Title Case, Series No. if applicable (Year).  
 Book Title in Title Case, Series No. if applicable (Year).

ORGANIZATION B (Location)

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