



**IAEA**

*Átomos para la paz y el desarrollo*

الوكالة الدولية للطاقة الذرية

国际原子能机构

International Atomic Energy Agency

Agence internationale de l'énergie atomique

Международное агентство по атомной энергии

Organismo Internacional de Energía Atómica

Vienna International Centre, PO Box 100, 1400 Vienna, Austria

Phone: (+43 1) 2600 • Fax: (+43 1) 26007

Email: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) • Internet: <https://www.iaea.org>

In reply please refer to: **EVT1905178**

Dial directly to extension: (+43 1) 2600-21637/28224

La Secretaría del Organismo Internacional de Energía Atómica (OIEA) saluda a los Estados Miembros del OIEA y tiene el honor de señalar a su atención la celebración del **Taller de Capacitación sobre los Adelantos en las Técnicas de Haces de Iones y sus Aplicaciones** (denominado en adelante el “evento”), que tendrá lugar en Zagreb (Croacia) del **30 de noviembre al 4 de diciembre de 2020**.

La finalidad del evento es impartir capacitación práctica sobre el uso y las distintas aplicaciones de las técnicas de análisis con haces de iones.

En la reseña informativa adjunta se ofrecen más detalles sobre el evento.

El evento se celebrará en inglés.

Se invita a los Estados Miembros a designar a una o más personas para que participen en este evento en representación de su Gobierno y se los alienta encarecidamente a que seleccionen con ese fin a mujeres cualificadas.

Por lo general, el OIEA no está en condiciones de sufragar los gastos de viaje ni de otra índole de los participantes en el evento. No obstante, dispone de fondos limitados para ayudar a cubrir los gastos de asistencia de determinados participantes. Esa ayuda puede ofrecerse normalmente, previa solicitud expresa, a un participante por país siempre que, en opinión del OIEA, la persona para la que se solicite pueda hacer una contribución importante al evento. La solicitud de apoyo financiero debe presentarse en el momento de la designación de los participantes mediante el formulario de solicitud de subvención adjunto (Formulario C).

Cabe señalar que el OIEA no paga ninguna indemnización por daños o pérdida de efectos personales. Tampoco proporciona seguro médico a los participantes en eventos del OIEA. Por lo tanto, se recomienda que estas personas adopten las medidas necesarias para contratar por su cuenta un seguro privado. No obstante, el OIEA cubrirá mediante un seguro los accidentes y las enfermedades claramente relacionados con los servicios prestados al OIEA.

Las designaciones deben presentarse al OIEA por conducto de la autoridad nacional competente (el Ministerio de Relaciones Exteriores, la Misión Permanente ante el OIEA o la Autoridad Nacional de Energía Atómica), a más tardar el **4 de septiembre de 2020**, por medio del formulario de participación adjunto (Formulario A). Los formularios de participación debidamente cumplimentados y autorizados deben enviarse por correo electrónico a la dirección [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org), o por fax al número: +43 1 26007 (no se precisan copias impresas). Asimismo, han de enviarse copias por correo electrónico al Secretario Científico del evento, Sr. Sotirios Charisopoulos, División de Ciencias Físicas y Químicas, Departamento de Ciencias y Aplicaciones Nucleares (correo electrónico: [S.Charisopoulos@iaea.org](mailto:S.Charisopoulos@iaea.org)), y a la Secretaria Administrativa, Sra. Mariam Yaney (correo electrónico: [M.Yaney@iaea.org](mailto:M.Yaney@iaea.org)). Una vez recibidas las designaciones oficiales, el Secretario Científico del evento contactará directamente a los participantes en relación con otras cuestiones de organización, como los detalles del viaje, según proceda.

En caso de que los Gobiernos desearan, además, nombrar uno o más observadores para que prestasen asistencia y asesoramiento a los participantes designados, se les ruega que comuniquen al OIEA el nombre y las señas de esos observadores a más tardar en la fecha antes indicada. De conformidad con las normas establecidas, corresponde a los Gobiernos sufragar los gastos de asistencia de los observadores que envíen a los eventos del OIEA. Este no paga ninguna indemnización por daños o pérdida de efectos personales de los observadores, ni por enfermedad, lesión o fallecimiento durante los viajes o en relación con su asistencia a los eventos del OIEA.

La Secretaría del Organismo Internacional de Energía Atómica aprovecha esta oportunidad para reiterar a los Estados Miembros del OIEA el testimonio de su distinguida consideración.



28 de julio de 2020

Documentación adjunta (en inglés únicamente):

Reseña informativa

Formulario de participación (Formulario A)

Formulario de presentación de memorias (Formulario B)

Formulario de solicitud de subvención (Formulario C)



**IAEA**

International Atomic Energy Agency

*Atoms for Peace and Development*

# **Training Workshop on Advances in Ion Beam Techniques and their Applications**

**Hosted by the  
Government of Croatia**

**through the  
Laboratory for ion beam interactions, Ruđer Bošković Institute**

**Zagreb, Croatia**

**30 November–4 December 2020**

**Ref. No.: EVT1905178**

## **Information Sheet**

### **Introduction**

Accelerator based technologies are associated with a broad range of applications having societal and technological impact and can contribute to the economic development of Member States. The utilization of accelerators enhances innovation in a variety of fields such as health, materials research, cultural heritage, environment, energy and natural resources being typical examples. In this context, accelerator applications are one of the thematic areas, where the IAEA supports its Member States in strengthening their capabilities to adopt and benefit from the usage of accelerators.

In response to the training needs of young scientists from developing Member States in utilization of accelerators, the Physics Section organizes a series of training workshops at the accelerator facilities of the Ruđer Bošković Institute (RBI), Zagreb, Croatia. These include training in Ion Beam Analysis (IBA) techniques biannually. IBA techniques is a group of non-destructive nuclear analytical methods applied with low energy electrostatic accelerators. They provide important, often unique, information on the elemental and isotopic composition, layer structure, electronic and many other properties of materials in solid or liquid form, with high precision. As such, they are extensively used in materials analysis, environmental monitoring, cultural heritage studies and other investigations of problems of key societal impact and industrial interest.

## Objectives

The objective of the forthcoming training workshop is to deepen knowledge and skills in the following scheduled basic IBA techniques:

- Proton-Induced X-ray Emission (PIXE)
- Proton-Induced Gamma-ray Emission (PIGE)
- Rutherford Backscattering Spectroscopy (RBS)
- Elastic Recoil Detection Analysis (ERDA)
- Inelastic Nuclear Reaction Analysis (NRA)
- Single ion techniques: Ion Beam Induced Charge (IBIC) and Scanning Transmission Ion Microscopy (STIM)

## Target Audience

This Training workshop, intended for young scientists working or planning to work for their thesis at accelerator facilities, will widen their specific knowledges and skills in the standard IBA techniques through lectures, hands on-hands work on the specific problems and demonstration experiments.

## Working Language(s)

English

## 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 **4 September 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 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).

## 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 **4 September 2020**.

## **Visas**

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

## **Organization**

### **Scientific Secretary**

#### **Mr Sotirios Charisopoulos**

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 21637  
Fax: +43 1 26007  
Email: [S.Charisopoulos@iaea.org](mailto:S.Charisopoulos@iaea.org)

### **Co-Scientific Secretary**

#### **Mr Natko Skukan**

Nuclear Science and Instrumentation Laboratory  
Physics Section  
Division of Physical and Chemical Sciences  
Department of Nuclear Sciences and Applications  
International Atomic Energy Agency  
IAEA Laboratories Seibersdorf  
Friedenstrasse 1,  
2444 SEIBERSDORF  
AUSTRIA  
Tel.: +43 1 2600 28624  
Fax: +43 1 26007  
Email: [N.Skukan@iaea.org](mailto:N.Skukan@iaea.org)

## **Administrative Secretary**

**Ms Mariam Yaney**

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.: +43-1-2600-26393  
Fax: +43 1 26007  
Email: [M.Yaney@iaea.org](mailto:M.Yaney@iaea.org)

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

# Participation Form

## Training Workshop on Advances in Ion Beam Techniques and their Applications

**Zagreb, Croatia**

**30 November–4 December 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 [S.Charisopoulos@iaea.org](mailto:S.Charisopoulos@iaea.org) and to the Administrative Secretary [M.Yaney@iaea.org](mailto:M.Yaney@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: 4 September 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:		
Do you intend to submit a paper?	Yes	No
Would you prefer to present your paper as a poster?	Yes	No
Title:		





# Form for Submission of a Paper

## Training Workshop on Advances in Ion Beam Techniques and their Applications

**Zagreb, Croatia**

**30 November–4 December 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 [S.Charisopoulos@iaea.org](mailto:S.Charisopoulos@iaea.org) and to the Administrative Secretary [M.Yaney@iaea.org](mailto:M.Yaney@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: 4 September 2020**

Title of the paper:		
If applicable: Abstract ID in IAEA-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	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

## Training Workshop on Advances in Ion Beam Techniques and their Applications

Zagreb, Croatia

30 November–4 December 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 [S.Charisopoulos@iaea.org](mailto:S.Charisopoulos@iaea.org) and to the Administrative Secretary [M.Yaney@iaea.org](mailto:M.Yaney@iaea.org).

**Deadline for receipt by IAEA through official channels: 4 September 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 (yyyy/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 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

\_\_\_\_\_