



**IRRMA2020 has been postponed by one year: IRRMA2020 → IRRMA2021**

The 11th International Topical Meeting

**IRRMA 2021**

**Industrial Radiation & Radioisotope Measurement Applications**

Moscow – Russia, 4-9 July 2021

*organized by*

**National Research Nuclear University MEPhI**

**Istituto Nazionale di Fisica Nucleare – Laboratori Nazionali di Frascati**

*in cooperation with*

**International Atomic Energy Agency**

The International Topical Meeting on Industrial Radiation and Radioisotope Measurement Applications (IRRMA) is a triennial event organised for the purpose of bringing together scientists and engineers from around the world who share an interest in radiation and radioisotope measurement applications.

IRRMA2021, the 11th edition of the International Topical Meeting on Industrial Radiation and Radioisotope Measurement Applications, is being organised by the National Research Nuclear University MEPhI (Moscow, Russia) together with the National Institute for Nuclear Physics (Italy) in cooperation with the International Atomic Energy Agency. It will be held at the Golden Ring Hotel in the heart of the Moscow downtown in the period of July 4-9, 2021.

IRRMA is devoted to current trends and potential future issues involving radiation and radioisotopes. The technical sessions of the will include invited lectures by leading experts in their fields, contributed oral papers and poster presentations of contributed papers. Attendees will have an opportunity to share ideas on industrial uses of radiation and radioisotopes, and also on research and applications in related fields such as biomedical applications of radiation, art and cultural heritage, Monte Carlo methods and models, radiation in environmental sciences, detection of threat material and contraband, radiation protection, shielding and dosimetry, radiation effects on materials, radiation detection and measurements, and other related topics.

To push and enhance at most the participation to IRRMA2021 the Advisory, Programme and Organizing Committees strongly encourage the participations of young colleagues, postdocs, PhD students, post- and undergraduate students.

The conference scientific program will include invited talks, oral and poster presentations and selected round tables. The organization of the event and the program will foresee and stimulate any kind of formal and informal discussion.

© **Meeting topics:**

- Interaction of Radiations with Matter
- Theoretical & Experimental Methods in Radiation Physics
- Radiation in Physical & Material Sciences
- Ionizing Radiation Sources & Measurement
- Biological & Medical Applications of Radiation
- Radiation Evaluation & Protection
- Industrial Applications & Radiation Technologies & Radiation Imaging
- Basic & Applied Tasks for Radiation in Environmental Sciences, Research on Archaeometry & Cultural Heritage
- Application of Radiation Techniques for Security Systems (Contraband & Threat Material Detection)



IRRMA2021 will host **two mini-workshops**:

- **Biological & Medical Applications of Radiation**

**Chairs: A. Bugay (JINR, Dubna), A. Nisbet (UCL, London), S. Deyev (IBCh RAS, Moscow)**

The workshop will focus on biomedical applications based on the use of charged beams and electromagnetic radiations of various frequencies.

- **BioPhotons: from Ideas to Applications**

**Chairs: M. Benfatto (LNF INFN, Frascati), P. Grigolini (UNT, Denton)**

BioPhotons: an ultra-weak electromagnetic emission of living organism of the order from few to some hundred photons per second, per square centimeter surface area – emission at least within the spectral region from 200 to 800 nm. Studies on this type of radiation attract attention of the researchers from the point of view of basic knowledge as well as of possible applications.

**@ International Advisory Committee**

D. Bradley, US, Surrey London  
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L. Treityak, NRNU MEPhI

**@ Program, Abstracts, and Proceedings**

The scientific program of the conference will include invited presentations by the experts in the field of the IRRMA2021 topics, selected oral presentations, and poster sessions.

The conference will start with the **IRRMA Primer** session together with the registration and will be followed at the end of the session by welcome mixer on **Sunday, July 4, afternoon**. The Primer session will include some formal greetings by the Organizers and sponsors of the conference.

**IRRMA2021**

INFN - Laboratori Nazionali di Frascati  
Via E. Fermi, 40  
I-00044 Frascati (Rome)  
Italy

**IRRMA2021**

National Research Nuclear University MEPhI  
Kashirskoe Shosse, 31  
115409 Moscow  
Russia

**E-mail:** [irrma2021@lists.lnf.infn.it](mailto:irrma2021@lists.lnf.infn.it)

**Website:** <http://www.lnf.infn.it/conference/irrma2021>

**Phone in Italy:** +39 06 9403 2399

**Phone in Russia:** +7 495 788 5699 ext 7175



The participants are invited to take part in aforementioned **two mini-workshops**. The programs of the workshops will be formed by selected reports to be delivered at dedicated sessions within the scientific program of IRRMA2021 (the details will be announced later on).

On **Monday, July 5**, morning the **scientific program** will start at the **Golden Ring Hall of the hotel Golden Ring**, and continue through the week with a mixture of oral and poster sessions, as well as specialized round tables. The program will be concluded by the closing session on **Friday, July 9**. After lunch on **Wednesday, July 7** there will be an excursion, and the conference dinner is planned on **Thursday, July 8 evening**.

Each author is requested to submit a camera-ready copy of the abstract of his contribution in English **by March 31, 2021** via e-mail [irrma2021@lists.lnf.infn.it](mailto:irrma2021@lists.lnf.infn.it). Authors are kindly required to follow *the guidelines for Abstracts of Invited, Oral or Poster Contributions in doc, LaTeX* (preferable style) (presented also at the end of this document); the templates of these formats are online available via the links on the page <http://www.lnf.infn.it/conference/irrma2021/downloads-and-dates>). *Please, save and submit the abstract under your family name typed in small letters, e.g. abstract\_smith.\*\*\* submitted by Dr. Smith.*

Abstracts of all accepted papers, both oral and poster, will be published in the Advanced Program and in the Book of Abstracts, and distributed to all participants at registration. *Post deadline abstracts will not be published.*

**Radiation Physics and Chemistry - RPC** (<https://www.journals.elsevier.com/radiation-physics-and-chemistry>) is offering a **Special Edition** for IRRMA2021. This Special Edition offers the opportunity to expand upon original research presented at IRRMA2021 in a peer-reviewed journal (<http://www.lnf.infn.it/conference/irrma2021/proceedings>).

Accepted papers, which relate to IRRMA2021 contributions, will be issued in a special edition of this journal. Please note that for this option:

1. The online submission will be opened **on July 15, 2021**. Authors are invited to submit their manuscripts directly via the RPC website **by November 15, 2021**.
2. All manuscripts should be submitted before this date and the option to submit online via the submission system will be closed after that date.
3. When submitting the manuscript, the authors must select “**SI: IRRMA2021**” as the article type. *The authors are requested to select the correct article type when they submit their articles in EES. In case of a wrong article type the paper may end up publishing in a regular issue and not in the special issue.*
4. Papers will go through the standard independent refereeing process of RPC.

In keeping with RPC policy, the papers must contain either important new results in science and/or technology or review active areas on research and developments involving **ionizing radiation in radiation physics, radiation chemistry and radiation processing**. Papers in the first category must contain new results. Confirmation of previously published results of unusual importance can be considered as new, as can significant null results. Review articles should review active areas of research in a form that is useful to both practitioners and people entering the field. Authors are asked to give considerable attention to the presentation of their material, making introductions accessible to intermediate graduate students and readers from other fields. The body of each paper should be economically and thoughtfully organized. Papers cannot be identical duplicates of work submitted for publication either to another journal or to another conference proceedings.

More information about the RPC editorial policies is available at <https://www.elsevier.com/journals/radiation-physics-and-chemistry/0969-806x/guide-for-authors>

For further information, please, do not hesitate to contact the Organizing committee via e-mail: [irrma2021@lists.lnf.infn.it](mailto:irrma2021@lists.lnf.infn.it)



## © Registration & Fee & Accommodation

Starting from **December 16, 2019**, participants are invited to register to the meeting by filling in the online Registration Form (please, visit the official conference web site: <http://www.lnf.infn.it/conference/irrma2021/registration>).

The details of your participation should be reported on the registration form to be evaluated by the Organizing Committee and meeting secretaries.

The meeting fee:

	Early registration /before April 30, 2021/		Late registration /from May 1, 2021/	
	non member	member	non member	member
<b>IRPS*</b>				
<b>Regular</b>	400 €	350 €	500 €	450 €
<b>Student**</b>	250 €	200 €	350 €	300 €
<b>Accompanying person</b>	100 €		100 €	

includes the attendance of all conference sessions, technical and social, the publishing of the books of both abstracts and proceedings, etc. The advanced online payment at earlier registration allows the participants to have a reduced registration fee (please, note that *the reduction depends on the period of payment and is split in two steps*); this payment should be done via bank transfer addressed to the bank account specified on the registration page.

\* Proof of the IRPS membership should be sent together with the registration form. To become the IRPS member, please, visit the web site of the Society - <https://www.ph.unimelb.edu.au/~chantler/opticshome/irps/>. In addition to the IRRMA 2020 registration fee discount the membership provides certain privileges, information about which you can find on the IRPS website.

\*\* Proof of the student status (student card copy or letter from mentor) should accompany registration form.

Simultaneously, a pdf copy of the bank transfer with a note "IRRMA2021" Registration Fee - Last Name/Name should be sent to the Organizing Committee via e-mail [irrma2021@lists.lnf.infn.it](mailto:irrma2021@lists.lnf.infn.it).

The Organizing Committee will consider granting limited number of students or young researchers. The interested persons should specify their requests compiling the field "Any other information or special requirements" and submitting a "Grant Application Form" (available online and presented at the end of the announcement).

Participants should arrange their own accommodation contacting the hotels directly quoting "IRRMA2021". All necessary information on the booking procedure is online published; please, follow the link for details: <http://www.lnf.infn.it/conference/irrma2021/accommodation>, and if necessary do not hesitate to contact the meeting secretaries.

## © Important dates

Abstract submission	by <b>March 31, 2021</b>
Abstract acceptance	by <b>April 15, 2021</b>
Hotel reservation	by <b>April 30, 2021</b> (participants are requested to secure a room as soon as possible)
Registration:	
early	by <b>April 30, 2021</b>
late	from <b>May 1</b> by <b>July 9, 2021</b>
Application for Student/Young Scientist's support	by <b>March 31, 2021</b>
Manuscript submission	within the period of <b>July 15 - November 15, 2021</b>

Participants are invited to check periodically the update of the conference deadlines visiting the official web site.



**IRRMA2021**  
**INDUSTRIAL RADIATION & RADIOISOTOPE**  
**MEASUREMENT APPLICATIONS**

Moscow - Russia, July 4 - 9, 2021

Chairmen: M.N. STRIKHANOV, S.B. DABAGOV



## @ IRRMA2021 Venue & How to get to the Meeting

The meeting venue for the period of July 4-9, 2021 is the Golden Ring Hotel, which is situated in the very center of Moscow (5 Smolenskaya Street, 119121 Moscow - <https://hotel-goldenring.ru/en/>). The conference halls, where all week the working sessions will be held, are placed at the hotel. For detail information about the Golden Ring Hotel and nearby hotels, restaurants, museums, etc., please, read below and use the link for Accommodation - <http://www.lnf.infn.it/conference/irrma2020/accommodation>.

Moscow is the capital of Russia, its political, economic, and cultural centre. This is the most populated city in Russia and Europe. For many people from Russia and other countries the capital of Russia is a city of magnificent opportunities.

There is always something going on in Moscow, i.e. exhibitions, festivals, performances, excursions, concerts, quests, marathons are continuously hosted by Moscow government. You can have a great time in Moscow and you don't have to spend a fortune either: get a bird's-eye view of the city, take a boat ride down Moscow river, descend 65 meters below ground to the Cold War bunker, take a tour around Moscow's bars or take part in wine tasting, enjoy roller skating in a park, or visit a maze of mirrors, etc.

For more details about Moscow and how to get to the IRRMA2021 and various important places, please, visit our web site via the link <http://www.lnf.infn.it/conference/irrma2021/venue>.

## @ Weather

**June in Moscow** is influenced by Humid Continental Mild Summer, Wet All Year climate. When you travel to Moscow in June you can expect at times fog, ordinarily rain, sometimes thunderstorm and expect a pleasant weather.

With an average temperature of 18°C, the city records highs of 22°C with lows of 13°C. Moscow is at its sunniest during the month of June and experiences maximum daylight and sunshine compared to other months. Over the course of the month, Moscow records an average sunshine hour estimate of 9.3 hours and 17 hours of average daylight.

**July in Moscow** is influenced by Humid Continental Mild Summer, Wet All Year climate. When you travel to Moscow in July you can expect repeatedly rain, frequently thunderstorm, rarely fog and hot weather.

The high seasonal norm is 26°C. The minimum is 17°C. These temperatures are far removed from those records observed in Moscow in July with a maximum record of 38°C in 2010 and a minimum record of 7°C in 2009. You can expect to have about 4 days with temperatures over 30°C, or 13 of the month. The sun rises at 04:05 and sets at 21:05.

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Phone in Italy: +39 06 9403 2399

Phone in Russia: +7 495 788 5699 ext 7175



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**© Instructions to Authors of Abstracts for Oral or Poster Contributions:**

**The Title is Written in Bold, Times New Roman 12, Centered**

Author <sup>a</sup>, Author <sup>b</sup>: Times New Roman 12, centered

<sup>a</sup> Institute: Times New Roman 10, centred

<sup>b</sup> Institute: Times New Roman 10, centred

There must be one blank line between the title, the authors' names and their affiliation and two blank lines between the affiliation and the beginning of the body text without any punctuation mark at the end of these lines. Authors and affiliation must not exceed one line each. The name of the corresponding author is underlined.

All abstracts must be written in English and occupy a maximum of 1 page A4 written in Times New Roman 12, alignment in mode "justify". Please make sure to respect the following margins: top, bottom, right: 25 mm; left: 30 mm.

Reference citations [1] are shown in the text by a number in brackets and follow one double space below the body text under the heading "References".

No figures, images or photos have to be included in the abstract.

In order to ensure a smooth abstract booklet preparation, please do not insert text or references in "footnote" mode or other encoding.

**References**

1. The heading "References" follows one double space below the body text in Times New Roman 10 bold.
2. L.J. Marshal, and G. Talleni, Phys. Rev. A **43** (2001) 5897.



**GRANT APPLICATION FORM**  
/to be submitted by March 31, 2021/

Name:	
Mailing address:	
	Phone:
	E-mail:
Year of birth:	Nationality:
Institute/University address & Position of the applicant	
Title of the contribution to IRRMA2021	
Financial support by home institution/other organization for the participation in IRRMA2021	

Date:

Signature:

Please send a copy of the completed Grant application form together with a recommendation letter of your supervisor or of some prominent scientist of your Institute/University **by March 31, 2021** to the IRRMA2021 secretariat via e-mail: [irrma2021@lists.lnf.infn.it](mailto:irrma2021@lists.lnf.infn.it) .