

The 15th International Radiation Physics Symposium

ISRP 2021

International Symposium on Radiation Physics

Kuala Lumpur – Malaysia

6-10 December 2021

hosted by

Sunway University, Malaysia

in collaboration with

Universiti Putra Malaysia

Universiti Teknologi Malaysia

supporting organizational

Malaysian Nuclear Agency

Malaysian Association of Medical Physics

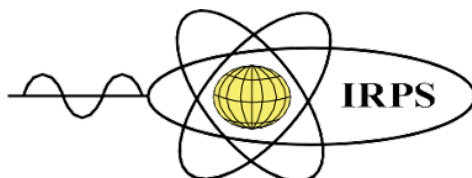
The International Radiation Symposia are one of the regular activities of the International Radiation Physics Society (IRPS), founded in Ferrara (Italy) in 1985. The Society seeks to promote global exchange and integration of scientific information related to interdisciplinary issues of radiation physics, including the promotion of theoretical and experimental research in radiation physics, research into the physical aspects of the interaction of radiation with inert or living material systems, education in radiation physics and the use of radiation for peaceful purposes.

ISRP-15 (Dec 6-10, 2021), 15th in the series of International Symposia on Radiation Physics, is being organised by the Research Centre for Applied Physics and Radiation Technologies (CAPRT) at Sunway University in collaboration with Universiti Putra Malaysia and Universiti Teknologi Malaysia. Supported by the International Radiation Physics Society (IRPS), the meeting will be held at Sunway University, located in the heart of Sunway City and just 12 km from the heart of Kuala Lumpur with easy transport linkages to the capital and beyond.

ISRP is devoted to current trends and potential future issues involving radiation in various applications. The meeting sessions 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 the underpinning interactions, the uses of radiation in research and applications in a great many 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. In respect of participation in ISRP-15, the Advisory, Programme and Organizing Committees are all at one in strongly encouraging the participations of young colleagues, postdocs, PhD students, other post-graduates and also undergraduate students.

Conference topics include:

- Fundamental processes in radiation physics
- Theoretical investigation & quantitative analytical techniques in radiation physics
- New radiation sources, techniques & detectors
- Absorption & fluorescence spectroscopy
- Applications of radiation in quantum control
- Applications of radiation in material science, nanoscience & nanotechnology
- Applications of radiation in agriculture, biology & medical sciences



- Application of radiation in space, aeronautics, earth, energy & environmental sciences
- Application of radiation in cultural heritage & art
- Application of radiation in industry
- Radiation physics & nuclear fuel cycle
- Education and training in nuclear physics and engineering

International Symposia on Radiation Physics (ISRP)

These have been held triennially since 1985, recorded in *NIM* and since 1994 in *Radiation Physics and Chemistry*.

- Calcutta ISRP-1, 1974
- Penang ISRP-2, 1982
- Ferrara ISRP-3, 1985
- Sao Paulo ISRP-4, 1988
- Dubrovnik ISRP-5, 1991
- Rabat ISRP-6, 1994
- Jaipur ISRP-7, 1997
- Prague ISRP-8, 2000
- Cape Town ISRP-9, 2003
- Coimbra ISRP-10, 2006
- Melbourne ISRP-11, 2009
- Rio de Janeiro ISRP-12, 2012
- Beijing ISRP-13, 2015
- Cordoba ISRP-14, 2018

Industrial Radiation and Radioisotope Measurement Applications (IRRMA)

In 2008 IRPS took on sponsorship of the meeting series Industrial Radiation and Radioisotope Measurement Applications (IRRMA), recorded in *Applied Radiation and Isotopes*:

- Prague IRRMA-7, 2008
- Kansas City IRRMA-8, 2011
- Valencia IRRMA-9, 2014
- Chicago IRRMA-10, 2017
- Moscow IRRMA-11 (4-9 July 2021)

International Conference on Dosimetry and its Applications (ICDA)

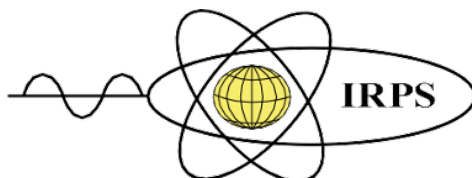
IRPS initiated the ICDA series in 2013, recorded in *Radiation Physics and Chemistry*:

- Prague ICDA-1, 2013
- Surrey, ICDA-2, 2016
- Lisbon, ICDA-3, 2019

The IRPS also sponsors a regional series Radiation Forum on Advances in Radiation Physics (IFARP)

IRPS initiated the ICDA series in 2013, recorded in *Radiation Physics and Chemistry*:

- Buenos Aires, FORUMBA, IFARP-1, 2017
- Kuala Lumpur, IFARP-2, 2019
- Melbourne/Kuala Lumpur hybrid, IFARP-3, 2021



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Suprakash Roy (Science and Culture at Indian Science News Association)
Tomas Trojek (Czech Technical University)
Pedro Vaz (Instituto Superior Técnico, Universidade de Lisboa)
Hector Rene Vega-Carrillo (Universidad Autónoma de Zacatecas)
Peter K.N. Yu (City University of Hong Kong)

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Patron

Abdul Aziz Tajuddin
Siti A'iasah Hashim

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M. Iqbal Saripan

Co-chairperson

Mayeen Uddin Khandaker
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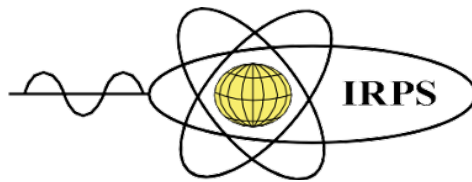
Che Azurhanim Che Abdullah
Aisha Rozaida Mohd Ridzuan

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Siti Aisyah Abdul Aziz
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Mohd Hafiz Mohd Zin

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Lee Soek Mun

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Nor Ezzaty Ahmad
Nor Afifah Basri
Siti Hajar Zuber

Website

Izyan Hazwani Hashim
Yap Yung Szen
Noor Zati Hani Abu Hanifah

Protocol

Rafidah Zainon
Siti Fairus Abdul Sani

Conference Material

Siti Zubaidah Ismail
Nurmazaina Md Ariffin
Nur Amalina Amu@Abu
Norehan Mohd Nor
Fariza Hanim Suhailin

Audio/Visual

Ahmad Taufek Abdul Rahman
Alvin Roy Meker
Faizal Mohamed

Photography/Video

Mazlyfarina Mohamad
Muhammad Safwan Ahmad Fadzil

Exhibition

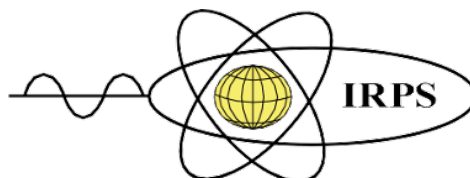
Zunaide Kayun
Iskandar Shahrin Mustafa

Social/Culture Events

Muhammad Khalis Abdul Karim
Faizal Mohamed

Scientific Technical Committee

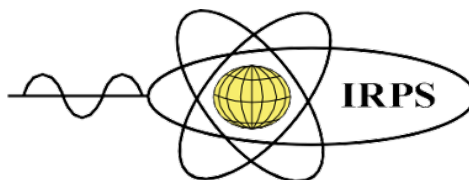
Koh Meng Hock
Yeong Chai Hong
Jeannie Hsiu Ding Wong
Ung Ngie Min
Nurul Hashikin Ab. Aziz
Mohamad Syazwan Mohd Sanusi
Muhammad Khalis Abdul Karim
Mohd Hafiz Mohd Zin



ISRP-15 Invited Speakers

The confirmation of the invited speaker at ISRP-15 as follows:

Type	Speaker	Institution	Title of Presentation	Session
Keynote Address	Siti A'iasah Hashim	Malaysian Nuclear Agency	Building a nuclear technology infrastructure: Malaysian experience	Opening Session Radiation physics and nuclear technology
Plenary 1	Philip Walker	University of Surrey	Isomers as a bridge between nuclear and atomic physics	Fundamental processes in radiation physics
Plenary 2	Koji Yoshimura	Okayama University	Th-229m and the quantum clock	Applications of radiation in quantum control
Plenary 3	Charles Grant	International Centre for Nuclear and Environmental Sciences (ICENS), Jamaica	The Application of INAA for agricultural and health related studies in Jamaica	Applications of radiation in agriculture, biology and medical sciences
Plenary 4	Heinz-Eberhard Mahnke	Freie Universität Berlin/Helmholtz-Zentrum, Berlin	Radiation studies of items of cultural heritage	Applications of radiation in cultural heritage and art.
Invited 1	Peter K N Yu	City Polytechnic Hong Kong	Rescue effect: a non-targeted biological effect of ionizing radiation	Applications of radiation in agriculture, biology and medical sciences
Invited 2	Larry Hudson	National Institute of Standards and Technology (NIST)	The Measure of All Things	Theoretical investigations and quantitative analytical techniques in radiation physics
Invited 3	Shakardokht Jafari	TrueInvivo & Portsmouth Hospital	Advances in silica bead dosimetry	New radiation sources, techniques and detectors
Invited 4	Phil Egidi	US Environmental Protection Agency (EPA)	Mineral Wealth and NORM	Applications of radiation in space, aeronautics, earth, energy and environmental sciences
Invited 5	Sandrine Courtin	University of Strasbourg	¹² C - ¹² C nuclear astrophysics	Fundamental processes in radiation physics
Invited 6	Mayeen Khandaker	Sunway University	Charged particle physics and the production of theranostic radionuclides	New radiation sources, techniques and detectors
Invited 7	Sultan Dabagov	Istituto Nazionale di Fisica Nucleare (INFN)	Capillary optics for intense radiation source delivery	New radiation sources, techniques and detectors
Invited 8	Mark Breese	National University of Singapore	Progress in Materials science in the use of synchrotron and Ion Beam sources	Applications of radiation in material science, nanoscience and nanotechnology
Invited 9: Special Lecture	Heinz-Eberhard Mahnke	Freie Universität Berlin/Helmholtz-Zentrum, Berlin	The Life and Times of Lise Meitner: beta-decay and non-radiative electromagnetic transitions	Fundamental processes in radiation physics
Invited 10	Arne Miller	Technical University of Denmark (DTU)/Roskilde	Dosimetry for Radiation Processing – methods, applications, challenges	Applications of radiation in material science, nano-science and nanotechnology
Invited 11	Ng Kwan Hoong	University of Malaya	Medical Physics professional developments	Education and training in nuclear physics and engineering
Invited 12	Siti Fairus Abdul Sani	University of Malaya	Physical studies of the Epithelial Mesenchymal Transition in Breast Tissues	Applications of radiation in agriculture, biology and medical sciences
Invited 13	Paul Bergstrom	National Institute of Standards and Technology (NIST)	The status of the NIST radiation interaction databases	Theoretical investigations and quantitative analytical techniques in radiation physics
Invited 14	Christopher Chantler	University of Melbourne	Advances in Atomic and Molecular Physics	Theoretical investigations and quantitative analytical techniques in radiation physics
Invited 15	Marco Sumini	University of Bologna	Compact and very High Dose-rate Plasma Radiation Sources for Medical Applications	New radiation sources, techniques and detectors
Invited 16	Pradip Kumar Sarkar	Manipal Academy of Higher Education	Neutron source/detector developments	Radiation physics and the nuclear fuel cycle
Invited 17	Hairul Azhar	Multimedia University	Radioluminescence dosimetry	New radiation sources, techniques and detectors
Invited 18	Hector Rene Vega-Carrillo	Universidad Autónoma de Zacatecas	Geo-neutrons	Neutron Physics



Program, Abstracts and Manuscripts Submission:

The scientific program of the conference will include invited expert presentations, selected oral presentations, and poster sessions. Onsite registration will take place on the afternoon of Sunday 5th December 2021 followed by a reception. The conference proper will start on Monday, Dec 6th and continue through to a closing session ending at midday Friday 10th December. Following lunch on Wednesday, Dec 8th there will be the opportunity for an excursion, while a conference dinner is planned for the evening of Thursday, Dec 9th.

Authors are requested to submit a camera-ready copy of their abstract, to meet a deadline of 30th September 2021. Do note that a maximum of two abstracts per presenting author will be permitted. Submission should be via e-mail isrp15@sunway.edu.my. Authors are kindly required to follow the guideline for Abstracts as presented at the end of this document. Please, save and submit the abstract under the family name, typed in small letters, e.g. abstract_Ming. *** submitted by Ming Tsuey Chew.

Abstracts of all accepted work, both oral and poster, will be included in the Abstracts Booklet, available to all registered participants. The organisers regret that post deadline abstracts will not be included in the booklet.

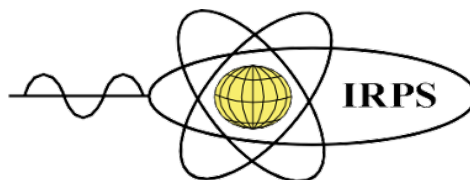
Manuscripts of work presented at the meeting are welcomed, to be considered for inclusion in a Special Issue of the journal Radiation Physics and Chemistry (RPC) (<https://www.journals.elsevier.com/radiation-physics-and-chemistry>). All submissions will be subject to the same refereeing standards that are applied to regular contributions to the journal (see below).

Please note that for this option:

1. Online submission will be opened as soon as possible after the meeting, the Elsevier gateway for direct submission to the journal being made known in due course. Work not presented at the meeting will not be eligible for consideration.
2. Manuscripts will go through the standard independent refereeing process of RPC.

In keeping with RPC policy, the work must contain either important new results in science and/or technology or review of active areas of research and developments involving ionizing radiation in radiation physics, radiation chemistry and radiation technology. Manuscripts 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 those entering the field. Authors are asked to give considerable attention to the presentation of their material, making the introductions accessible to intermediate graduate students and readers from other fields. The body of each paper should be economic in style and thoughtfully organized. Do note that a great deal of time can be wasted in authors failing to adhere to the style adopted by RPC, including the system of citation and referencing. Manuscripts cannot be identical duplicates of work submitted for publication either to another journal or to another conference proceedings.

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



Instructions to Authors of Abstracts for Oral or Poster Contributions:

The Title is Written in Bold, Times New Roman 12, Centred

Author a, Author b: Times New Roman 12, centred
a Institute: Times New Roman 10, centred
b 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 these lines. Authors and affiliation must not exceed one line each. The name of the corresponding author must be 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 are allowed in the abstract. Also, do not insert text or references in a “footnote” mode or other form of 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.

For any other information, please, do not hesitate to contact the Organizing committee via e-mail:

isrp15@sunway.edu.my.

Important dates

Abstract submission May to August 31, 2021

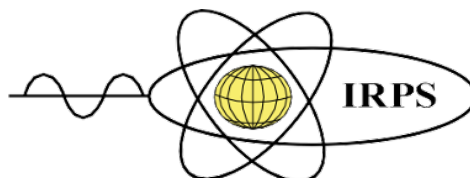
Abstract acceptance by Sep 30, 2021

Hotel reservation is recommended by Oct 31, 2021 (participants are requested to secure a room as soon as possible)

Registration:

Early registration by October 31, 2021

Late registration from Nov 1 to Dec 5, 2021



The registration fee structure (in ringgit Malaysia, RM):

Category	Early registration /before Oct. 31, 2021/		Late registration /from Nov 1, 2021	
	non member	member	non member	member
IRPS*				
Regular	RM 1600	RM 1300	RM 1800	RM 1500
Student**	RM 1000	RM 700	RM 1200	RM 900
Accompanying person	RM 500		RM 500	

Note: The fee includes attendance to all ISRP-15 conference sessions, technical and social events, also the abstracts booklet, soft copy certificate, also allowing submission to the RPC ISRP-15 Special Issue (the normal refereeing system will be adopted in determining acceptance for inclusion). Accommodation is not included in conference fee, however if needed we can help/assist in arranging reservation in the two identified conference venue hotels (please see below).

Early registration via online payment allows the participants to have a reduced registration fee.

*To become an IRPS member, please, visit the Society website - <https://www.ph.unimelb.edu.au/~chantler/opticshome/irps/>.

In addition to the ISRP-15 registration fee discount, membership provides privileges, information as detailed in the IRPS website.

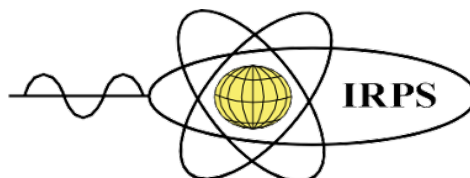
** Proof of student status (copy of student card or letter from supervisor/mentor) should accompany the registration form.

Payment should be via bank transfer to the bank account specified on the registration page.

The registration fees can be paid by the following method:

1. **E-payment** link (for Credit Card/Debit Card (VISA and MasterCard are acceptable) and Internet Banking FPX):
Link: <https://epayment.sunway.edu.my/suni>
2. **Cash**
Please bring this document and pay at Financial Services Cashier Counter located at Level 1, Sunway College building.
Opening hours: Monday to Friday, 8.30am - 5.30pm
3. **Cheque**
Please issue cheque payable to "SUNWAY UNIVERSITY SDN BHD".
4. **Telegraphic Transfer (TT)**
Please email this invoice together with TT remittance slip to isrp15@sunway.edu.my

Bank Name : HSBC Bank Malaysia Berhad
 Account No : 352-512164-101
 Swift Code : HBMBMYKL
 Bank Address : Unit 2A & 2A-A, Jalan USJ 10/1B, 47610 UEP Subang Jaya, Selangor Darul Ehsan, Malaysia



Note:

- i. Please take note that for International Participants, fees are based on the rate of currency exchange that prevail at the time of payment.
- ii. Proof of payment:
Please send us the proof of payment or the transaction details of the payment made to isrp15@sunway.edu.my.
- iii. Receipt:
The Official receipt of the payment will be sent to your mailing address, once the payment has been confirmed.

Accommodation:

A good range of hotels are available within close walking distance to Sunway University (15 to 20 minutes at gentle walking pace), the hotel costs covering a range suiting all budgets. Sunway University can be accessed from these via a network of covered walkways that offer interesting vistas as well as some welcome exercise, also connecting with a large shopping mall that offers a range of eating establishments, similarly suiting all budgets and tastes. The closest hotels to the University are The Sunway Resort Hotel and Spa, and Sunway Pyramid Hotel, these being our nominated conference venue associated hotels.

Registration will be open from **March 1, 2021**. Participants are invited to register to the meeting by filling in the online Registration Form (please, visit the official conference web site: <https://www.isrp15.com>)