



REPROLAM CYCLE OF SEMINARS ON CODES OF MONTE CARLO

SEMINAR TITLE: **MCMEG AND INTERNAL DOSIMETRY IN NUCLEAR MEDICINE**

Date : NOVEMBER 24, 2022

Time: 15:30 HS BRAZIL

Speakers:



Telma C. F. Fonseca
Department of Nuclear Engineering of
the Federal University of Minas Gerais
(DENU/UFMG),
Belo Horizonte, Minas Gerais Brazil.



Jhonny Antonio Benavente Castillo
Department of Nuclear Medicine of the
National Institute of Neoplastic
Diseases (DMN/INEN), Lima, Peru.

Summary:

Monte Carlo Modeling Expert Group (MCMEG) is a computational intercomparison group in the field of Radiation Sciences. The group started in the year of 2016 and since then has been promoting free and online courses, computational intercomparisons and participating in various projects mainly in the area of internal dosimetry. MCMEG is now a collaborator of REPROLAM and in this seminar we will present about the intercomparisons published by the group, the courses promoted, the projects carried out and in process, as well as the experience obtained with modeling and simulations carried out in the area of internal dosimetry, the main difficulties encountered and the Monte Carlos codes used.

To join:

<https://teams.microsoft.com/join/19%3aCY5UKpC9lyl-AM2qjuQ47R22FPLIW9WLhvqIZmbBYVZU1%40thread.tacv2/1667561176301?context=%7b%22Tid%22%3a%226b6b401-7f5c-48af-8de3-d49a84cdae94%22%2c%22Oid%22%3a%22414a65e0-9886-4fa6-83f5-a4c1fb419dc7%22%7d>

SEMINAR TITLE: **INSTRUCTION TO THE PHITS CODE (PARTICLE AND HEAVY ION TRANSPORT CODE SYSTEM)**

Date : DECEMBER 2, 2022

Time: 11:00 a.m. from ARGENTINA

Speaker: Matías Valero

Summary:

PHIST is a general purpose Monte Carlo particle transport simulation code developed in collaboration between JAEA (Japan Atomic Energy Agency) and other institutes.

REPROLAM NEWS

Members of the reprolam network were deserving of first and second place among the awards granted by the organizing committee at the closing ceremony of the XII Regional Congress of Radiological and Nuclear Safety and the X IRPA Regional Congress.

The Organizing Committee of the XII Regional Congress on Radiological and Nuclear Safety and the X IRPA Regional Congress awarded prizes to the best papers presented at the Congress in the field of radiological protection for authors over 35 years of age. Three prizes were awarded (first, second and third place) and were announced and delivered at the Closing Ceremony of the XII Regional Congress on Radiological and Nuclear Safety and the X IRPA Regional Congress.

Members of the **REPROLAM** Network were deserving of the **FIRST** and **SECOND PLACE** among the prizes awarded, for the scope and impact at the regional level of the works presented. The awarded works were:

FIRST PLACE: *“Results, challenges and perspectives to continue advancing in the implementation of the National Dose Registry Prototype for Latin America”.*
PRIMARY AUTHOR: Maryzury Valdés Ramos.



Within the framework of IAEA regional projects, a prototype National Dose Registry (RND) was designed and developed for Latin America, so that each country could retrieve, preserve and centralize the dosimetric records of all occupationally exposed workers and thus contribute to improve the application safety monitoring and occupational exposure assessment system in the country.

Progress has been made in the implementation of the first version of the RND Prototype, to date 17 countries in our region have experience (with different scopes) to show on this topic. The work presented summarized the main results obtained during the first phase of implementation of the RND, the shortcomings detected that have limited its effective implementation, and future challenges. It has been reported that only high synergy between the management teams, the regulatory authorities and the dosimetric service providers guarantee the success of the implementation of an RND.

Its implementation in the Latin American and Caribbean region has provided the Regulatory Authorities with a tool that allows verifying the level of compliance with dose limits and restrictions, as well as performing statistical evaluations of the results of individual radiological surveillance that can determine the relevance and effectiveness of the radiological protection programs implemented in the practices and contribute to their optimization.

As a future perspective, the design of a consolidated dosimetric data tool for the Latin American region is promoted, which receives periodic information from the RND and can be used to characterize the radiological situation in a comprehensive manner on a regional scale. Having a common dosimetric information management system at the national level and a consolidated regional data tool can contribute to the standardization of dosimetric data in the region.



Maryzury Valdés Ramos

SECOND PLACE: *“The National Strategy for Education and Training in Radiological Protection. Lessons from regional workshops in Latin America”.*

PRIMARY AUTHOR: Omar García .

The National Strategy for Education and Training in Radiological Protection has as its final objective that the countries achieve a sustainable infrastructure for education and training in radiological protection. The strategy, which has defined phases and methodologies for its execution in IAEA safety guidelines and reports, does not, however, have a significant implementation at the international level, and Latin America is not exempt from this scenario. For this reason, the IAEA has developed important training activities in workshops dedicated to the subject, both at the regional and national levels.

The work presented the methods used and the results obtained in the last two regional workshops, Panama 2018 and Mexico 2019, which have been developed on the subject in Latin America with the support of the IAEA. In the organization, the assistance of representatives of regulatory bodies and training providers stands out. The work prior to the workshop that the attendees must carry out, the teamwork during the workshops and the presentation of results is significant.

It is significant the concept developed to organize in each country the national steering committee, or similar to develop and implement the strategy, the familiarization with the EduTA questionnaire and its application to evaluate the regulatory framework and the teaching and training capacities of each country, the drafting of the national strategy, using the IAEA methodology, consensus agreements to set goals that are regularly monitored, and updating of RASIMS.

The workshops have played a significant role in preparing key specialists in the training process in Latin America. They have allowed a significant group of professionals to become familiar with the tools developed by the IAEA for the development of policies and strategies in Education and Training in Radiological Protection.



Omar García

EURADOS WEBINAR_ INTERCOMPARISON IC2021 AREA OF PASSIVE AREA DOSIMETRY SYSTEMS – A REVIEW BY ORGANIZERS AND PARTICIPANTS

FREE

THU, NOV 24, 2022 · 5:00 AM

ATLANTIC TIME (CANADA) (GMT -4:00)

The EURADOS intercomparison IC2021 area was carried out between May 2021 and April 2022 for 66 participating passive H*(10) area dosimetry systems from 47 different institutes and monitoring services.

Three measurement conditions were provided at locations of the Karlsruhe Institute of Technology: 3-months indoor, 3-months outdoor and 6-months outdoor.

The challenge of this intercomparison was measuring additionally irradiated low dose radiation. Six dosimeters of each participating system were irradiated with Cs-137 gamma reference radiation: Three dosimeters with 150 µSv and three dosimeters with 300 µSv. Another six dosimeters of each participating system were not irradiated and were used for background dose subtraction.

Typical values of the measured background dose were between 200 µSv and 450 µSv with a few significantly higher values up to 1.6 mSv. Despite the challenge of the low reference dose values, more than 90 % of the resulting response values of the irradiated dosimeters were within the recommended ISO 14146 trumpet curve response limits.

The webinar gives a short overview on the intercomparison, including lessons learnt by the organizers and the experience made by one of the participants.

AGENDA

- Introducción a EUROS WG3 - Dosimetría Ambiental- Arturo Vargas
- Introducción y descripción general del área de intercomparación IC2021 - Julia Aslan
- Resultados e incertidumbre de medida del sistema CIEMAT TLD en la intercomparación de áreas IC2021 - Rafael Rodríguez Jiménez
- Retroalimentación y Conclusiones del área de Intercomparación IC2021 - Christian Hranitzky

To register:

<https://www.bigmarker.com/sckcen/Intercomparison-IC2021-area-of-passive-area-dosimetry-systems-a-review-by-organizers-and-participants>

VIRTUAL SEMINAR WITHIN THE FRAMEWORK OF PROJECT RLA9091 “WEBINAR ON QUALITY CONTROL PROCEDURES FOR COMPUTERIZED TOMOGRAPHY”

NOVEMBER 17 AND 18, 2022

3 pm - VIENNA TIME, AUSTRIA

The International Atomic Energy Agency under the framework of the RLA9091 project "Strengthening regional capacities for end users and technical support organizations in the field of radiation protection and emergency preparedness and response in accordance with IAEA requirements", extends an invitation to participate in a virtual seminar in Spanish, entitled "Webinar on quality control procedures for computed tomography", with the aim of raising the level of compliance with radiological protection requirements with respect to occupational and medical exposure, offering information on quality control procedures in Computed Tomography, including the relevant tests and measurements, as well as methodologies and equipment to carry out the controls.

The seminar will provide participants with best practices, graphic demonstrations and other resources in line with the content of the IAEA TECDOC 1958.

Speakers:

- Helen Khoury
- Simone Kodlulovich

TO REGISTER:

https://teams.microsoft.com/registration/kxTyotGkf0utB4Gc-gk9cSg,XNFaQPTSxUuPjTE3oId9fw,XVET3LFsREKTVXaUJOYO6Aw,Zb-Eq-BKIUOuf0MGliiDBw,vcgowUDn5UGLy6OYEOKD_g,tQ8a8OliMUyWitpRVJOV4A?mode=read&tenantId=a2f21493-a4d1-4b7f-ad07-819c824f5c4a

ICTP-IAEA WORKSHOP ON QUALITY ASSURANCE AND DOSIMETRY IN BRACHYTHERAPY

STARTS 21 NOV 2022

ENDS 25 NOV 2022

CENTRAL EUROPEAN TIME



When implementing new brachytherapy sources and image-guided techniques into clinical practice, rigorous quality assurance and dosimetry is needed to guarantee the safe use of this nuclear technology and to improve outcomes. National guidelines for brachytherapy differ widely across the world; therefore, a harmonized approach is needed. High dose rate brachytherapy is an advanced technology that involves complex dose prescription, optimization, recording and reporting.

The target audience include medical physicists involved in clinical brachytherapy service in the radiotherapy department. Participants shall have clinical experience and a basic background in dosimetry and quality control in radiotherapy. A 5-minute presentation is expected from each participant/hospital of their institutional procedures (QA and clinical workflow of a gynaecological patient using High Dose Rate Brachytherapy).

Topics:

- Introduction to the physics of brachytherapy
- Description of existing brachytherapy sources
- Source strength determination
- Dose calculation formalisms and uncertainties
- The brachytherapy processes for Level-2 ('2D') and Level-3 ('3D')
- Imaging in brachytherapy (X-ray, C-arm, US, CT, MRI)
- Applicator selection, reconstruction, commissioning in various imaging modalities
- Brachytherapy dose prescription, optimization, and reporting
- Medical physics aspects of quality management, quality assurance and auditing methodologies in the clinic
- Practical hands-on quality assurance and dosimetry using a High-Dose-Rate afterloader in a clinical setting

For more information: <https://indico.ictp.it/event/9844/>



**WEBINAR TO PRESENT THE FINDINGS OF UNSCEAR 2020/2021
REPORT, ANNEX D
“EVALUATION OF OCCUPATIONAL EXPOSURE TO IONIZING RADIATION”
THURSDAY, 17 NOVEMBER 2022, 1–2.30 P.M. (CET)**

The United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) was established by the United Nations General Assembly in 1955 to independently assess and report on the levels and effects of exposure to ionizing radiation. Governments and international organizations worldwide use the Committee’s estimates as the scientific basis for evaluating radiation risk and for deciding on protective measures.

The Committee has regularly provided information on radiation exposure since its inception, and it has been estimating global occupational exposure by reviewing the literature and conducting global surveys in cooperation with other international organizations, such as the International Atomic Energy Agency and the International Labour Organization. These surveys aimed to acquire new data on occupational exposure in addition to those in the published literature.

The UNSCEAR 2020/2021 Report, Annex D “Evaluation of Occupational Exposure to Ionizing Radiation” published in September 2022 presents the Committee’s latest global estimate of world-wide occupational exposure for different sectors involving exposure to natural sources and to human-made sources of radiation over the period 2002-2014.

The evaluation includes

- 1) estimates of average annual collective effective doses to workers for each major work sector and subsector involving the use of ionizing radiation
- 2) analysis of temporal trends in occupational exposure.

It is based on data provided by United Nations Member States and international organizations, as well as peer reviewed literature and national reports on radiation exposure to workers.

The key findings, trends and implications for future evaluation will be presented at the webinar, which is aimed at radiation protection experts and decision makers from scientific, research, regulatory, licensees and diplomatic communities and international organizations.

For more information:

<https://nucleus.iaea.org/sites/orpnet/resources/Shared%20Documents/FLYER%20Occupational%20Exposure%2020220929.pdf>



ISEMIR is the Information System on Occupational Exposure in Medicine, Industry and Research.

To access: <https://nucleus.iaea.org/isemir/>



ISEMIR-N: a tool for sharing operational experiences.

ISEMIR N - a tool that facilitates sharing operational experience and information to improve the optimization of occupational radiation protection in different industrial processes involving Naturally Occurring Radioactive Material (NORM) through regular collection and maintenance of data on occupational exposure.



ISEMIR-IR – a tool for non-destructive testing companies carrying out industrial radiography.

ISEMIR-IR is developed as a web-based tool for data collection. It assists IR facilities in benchmarking their arrangements in radiation protection and safety, and hence in promoting of, implementation of optimization of occupational radiation protection.



ISEMIR-IC – a tool for interventional cardiology facilities.

ISEMIR-IC is developed as a web-based tool for data collection. It assists IC facilities in benchmarking their arrangements in radiation protection and safety, and hence in promoting of, implementation of optimization of occupational radiation protection.