IM 2022 NEUDOS 14 EURADOS THE HENRYK NIEWODNICZAŃSKI INSTITUTE OF NUCLEAR PHYSICS POLISH ACADEMY OF SCIENCES

EURADOS TRAINING COURSE

APPLICATION OF MONTE CARLO METHODS FOR INDIVIDUAL MONITORING AND DOSIMETRY OF IONISING RADIATION

April 23-24, 2022 • Kraków, Poland

In cooperation with the IM2022/NEUDOS-14 Conference

The Monte Carlo (MC) method is a numerical simulation technique that is widely used to model scenarios involving ionizing radiation for dosimetry and radiological protection. A training course on applications of MC simulations for individual monitoring dosimetry has been organised by the European Radiation Dosimetry Group (EURADOS) and the Henryk Niewodniczański Institute of Nuclear Physics (IFJ PAN). The course immediately precedes the joint *International Conference on Individual Monitoring of Ionising Radiation* (IM2022) and *Neutron and Ion Dosimetry Symposium* (NEUDOS-14) meeting (https://imneudos.jordan.pl/en) and is aimed primarily at individuals working in personal dosimetry of ionising radiation.

Course Content:

Internationally renowned experts will provide lectures and guide practical exercises. Attendance is therefore limited to a maximum of 30 participants. The course will consist of modules on:

- *Dose quantities and units, including changes proposed by ICRU*
- *Discussion of instruments, detectors and dosemeters*
- *Introduction to the physics relevant to individual monitoring for photons and neutrons*
- *Application of simulations in individual monitoring for calibration, personal dosimetry and area monitoring*

Extended practical sessions will guide participants through the design and development of an idealised personal dosemeter. Over several tutorials, a model will be built upon to include: the specification of the geometry, the inclusion of relevant physics options, defining outputs, and processing data.

Reference solutions will be provided after each session, with time allowed for discussions and questions.

Prerequisites:

Participants need to have working knowledge of Monte Carlo simulations for radiation transport to get the most from the course. The practical sessions will use the Monte Carlo code MCNP, so participants should optimally bring their own laptops with MCNP already pre-installed.

Further information and registration form are available at: https://eurados-sckcen.be/events-overview/course-MC4IM

Contact: Jonathan Eakins, **jonathan.eakins@PHE.gov.uk**

At a Glance:

Topic: MC Methods for Individual Monitoring

Date: April 23-24, 2022

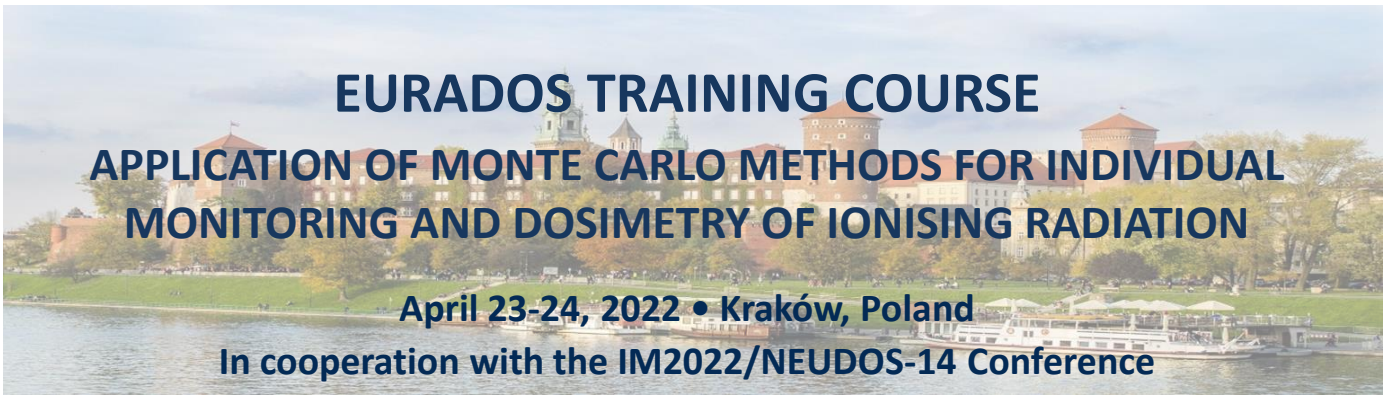
Venue: Institute of Nuclear Physics PAN
ul. Radzikowskiego 152
31-342 Kraków, Poland

Fees: Students, EURADOS sponsors: 200 €
All others: 250 €
(Prices are settled in Euros (€) and include refreshments but exclude taxes)

Web: https://eurados-sckcen.be/events-overview/course-MC4IM

Deadline for registration: February 28, 2022

IM 2022 NEUDOS 14 — EURADOS — THE HENRYK NIEWODNICZAŃSKI INSTITUTE OF NUCLEAR PHYSICS POLISH ACADEMY OF SCIENCES



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Training Course:

The course will consist of two days of modules presenting fundamentals required for computational dosimetry applications for individual monitoring. As well as lectures covering the most important aspects behind dosimetry and personal monitoring, the course will provide hands-on training in practical sessions.

Participants should optimally bring their own laptop for working during the practicals, upon which a licensed copy of MCNP should be installed; no general-use PCs will be provided, nor advice on installing or configuring the MCNP software itself.

Course Schedule *(provisional):*

The final schedule of the course is still be to confirmed. A provisional structure is likely to follow the below timetable:

Saturday 23rd April: '*Dose Quantities*' lecture; '*Instruments, Detectors and Dosemeters*' lecture; Introduction to the practical dosimetry problem; Practical session on geometry-building; '*Neutron physics*' lecture; Practical session on photon and photon/neutron dosemeters

Sunday 24th April: Practical session on backscatter effects; '*Calculating dose quantities*' lecture and practical; *'Absorbed doses to dosemeter readout'* lecture; *'MC Intercomparisons: common successes and pitfalls*' lecture; '*New ICRU quantities*' lecture; '*Further applications of MC for dosimetry*' lecture and practical; Discussion and Q&A

Registration:

Deadline for registration and payment is **February 28th 2022**. A Registration Form is provided at the course webpage: https://eurados-sckcen.be/events-overview/course-MC4IM

Upon confirmation of your participation, you will receive the invoice for the participation fee.

Venue:

Institute of Nuclear Physics PAN
ul. Radzikowskiego 152
31-342 Kraków, Poland

Fees:

Students and EURADOS sponsors: 200 €
All others: 250 €
(Prices are settled in Euros (€) and include lunches and refreshments but exclude taxes.)

For further information on travel and accommodation see: https://imneudos.jordan.pl/en

EURADOS:

We are a network of more than 80 European institutions and 600 scientists. As a non-profit organization we promote research and development and European cooperation in the field of dosimetry of ionizing radiation. We maintain a network that includes experts, reference and research laboratories, and dosimetry services. Our activities encompass the coordination of working groups that promote technical development and its implementation in routine work. WGs also contribute to compatibility within Europe and conformance with international practices. EURADOS organizes scientific meetings, training activities, intercomparisons and bench-mark studies. https://eurados.sckcen.be/