

## Development and prospects of radiation medical physics in Russia

*Tuesday 1 July 2025 12:00 (30 minutes)*

Radiation medical physics is a key interdisciplinary field at the intersection of nuclear physics, medicine, and engineering. In Russia, the development of radiation medical physics is closely linked to the advancement of nuclear technologies and the growing demand for high-precision methods in diagnostics and radiation therapy. Over the past decades, significant progress has been made in radiation therapy, medical imaging, and the production of medical radionuclides. In clinical practice, modern techniques in radiation therapy and dosimetry are rapidly evolving, aimed at improving treatment quality and dose delivery accuracy through the use of advanced medical accelerators and imaging systems. Furthermore, there is a steady increase in scientific research focused on improving radiotherapy technologies, optimizing treatment planning, and developing personalized approaches to cancer care.

The training of highly qualified specialists capable of operating advanced equipment and conducting scientific research in the field of medical physics is a crucial prerequisite for the continued growth of the discipline. Specialized academic programs and professional development courses have been successfully integrated into the educational system, ensuring the preparation of experts for both healthcare and industry. Since 1998, Moscow State University has trained over 230 medical physicists through undergraduate, graduate, and specialist programs, and more than 200 professionals have completed continuing education courses at MSU. A significant milestone was the launch of the first official accreditation of medical physicists in Russia, implemented by the Accreditation Center of Moscow State University, based on accumulated expertise in science and education. Over the past five years, nine PhD and three Doctor of Science theses have been successfully defended in the field.

Despite ongoing efforts, the demand for qualified medical physicists in Russia remains high. The future of radiation medical physics in the country is closely tied to the continued improvement of radiotherapy technologies, the advancement of medical imaging methods, and the expansion of radionuclide production. Close collaboration between academic institutions, research centers, and healthcare organizations will play a critical role in driving further progress.

**Primary author:** Prof. CHERNYAEV, Aleksandr (Lomonosov Moscow State University)

**Presenter:** Prof. CHERNYAEV, Aleksandr (Lomonosov Moscow State University)

**Session Classification:** 0. Plenary

**Track Classification:** Section 7. Nuclear medicine.