

Special session on Current Status of Hadron Therapy of oncological diseases during the X International Congress "Nevsky Radiology Forum – 2018" on 27-28 April in Saint-Petersburg, Russia.

This Special session aims to bring to Saint-Petersburg the leading European radiologists, researchers and specialists in hadron therapy radiation oncology to exchange and share their practical experiences, knowledge and research results with the Russian doctors and researchers.

The audience at this Special Session is expected to be about 165 participants. Duration of this session is 3 hours (with one break). The 2nd part of this session is devoted to Saint-Petersburg ongoing activity in hadron therapy.

6 invited 30 min talks (25+5) are planned for this special session. Simultaneous translation from English to Russian will be provided. The poster session could be considered in addition to the oral reports.

The list of the invited speakers includes:

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- 1) Manjit Dosanjh, CERN, Geneva, Switzerland
 - 2) Ramona Mayer, former MedAustron, Austria
 - 3) Bleddyn Jones, University of Oxford, United Kingdom
 - 4) Mikhailov Aleksei, Proton therapy center of the Dr. Sergey Berezin Medical Institute Saint-Petersburg,
 - 5) Oleg Korytov, Russian Scientific Center of Radiology and Surgical Technologies n.a. A.M. Granov, St-Petersburg
 - 6) Vladimir Zherebchevsky, Saint-Petersburg State University, Saint-Petersburg, Russia

Please, see some details below.

PROGRAM

SPECIAL SESSION: "HADRON THERAPY - EXPERIENCE OF EUROPEAN RADIOBIOLOGISTS"

April 27, 2018,

Time: 14:45 -16: 15 and 16:30 - 18:00

One session 1.5+1.5 hours hours (with simultaneous interpretation)

Floor No. 2 Hall No. --- H25-H27 ---- (according to the grid of the congress program)

The general educational goal of the Educational Event (EE), indicating the scope and level of content	<p>The purpose of the Educational Event (EE) is to raise awareness of the broad medical community, including oncologists and radiotherapy specialists, on the results of the fundamental research and the benefits and successful practical experience in the use of accelerated particle beams (of protons and carbon nuclei) for the treatment of oncological diseases, in particular, of localized deep-seated inoperable tumours.</p> <p>The session is also aimed to provide the experts of the relevant disciplines with an opportunity to exchange ideas and discuss the key issues in application of the latest effective techniques and technologies for hadron therapy.</p>
	<p>As a result of this EE, students will acquire a detailed and up to date picture of European practical achievements in the field of hadron therapy, the information in currently ongoing basic research, methods used and protocols of treatment. It is important that students and medical doctors not only will expand the field of their knowledge related to their professional competencies and expertise, but will also get an idea of the possibilities of practical future use of this new knowledge here in Saint-Petersburg.</p> <p>The new information also includes various educational and research programs, coordinated by the ENLIGHT network of the hadron therapy centers. It is especially relevant in connection with the commissioning of the first Center for Proton Therapy in St. Petersburg, Russia.</p> <p>Based on the results of participation in the EE, students will become familiar with new knowledge to choose alternative methods for treating patients.</p>
	<p>Target audience of students - doctors-radiologists, ultrasound diagnostics doctors, radiology doctors, oncologists, radiation therapists, U-Sound-diagnostics</p> <p>The estimated number of participants (how many in the number of seats in the hall) – about 165</p>
The educational needs /Образовательные потребности аудитории	<p>The educational need for "hadron therapy" is necessitated by the existing gap in the training of specialists in the Russian Federation and in the EU. This gap is associated with the limited resources for hadron therapy, the practical long-term absence in Russia of specialized medical accelerators of protons and carbon nuclei that provide a highly accurate and effective control of some of the tumor.</p> <p>The definition of the educational needs for the "hadron therapy" for the target audience was carried out by the proposer (G.Feofilov) on the basis of his long-term (since 2004) knowledge and comparison of the activity of European hadron therapy centers with the Russian practice of radiation therapy.</p> <p>The need to introduce the successful experience of European colleagues into</p>

	<p>the clinical practice of Russian radiologists and oncologists is obvious. The use of beams of charged particles (hadrons) for the non-surgical treatment of a wide number of tumours allows substantial reductions in radiation dose to many important surrounding normal tissues of the body in order to reduce radiation-related side effects if compared to conventional treatment modalities. This is especially important in the case of pediatric oncology.</p> <p>The close collaboration of the leading St. Petersburg institutes with ENLIGHT made it possible in 2007 to develop, within the framework of the ISTC project, a medical and technical justification for the Center for Hadronic Therapy and Diagnosis of Cancer Diseases for the North-West region of Russian Federation – a project that remains still relevant today.</p> <p>This educational need in the direction of "hadron therapy" refers to the development of new knowledge, skills, and competencies of students, researchers, medical physicists and medical doctors.</p>
Chairman of the NRF-2018	<p>Mishchenko Andrey Vladimirovich Ph.D. Head of the Scientific Department of Diagnostic and Interventional Radiology FGBU "Cinematography Oncology named after N. N. Petrov" MH RF 2015 FGBU "Research Institute of Oncology named after N.N. Petrova »MH RF 18 years</p>
Contacts	<p>+79112115453 Dr.mishchenko@mail.ru</p>
Session moderator	<p>Feofilov Grigory Alexandrovich PhD Head of the Laboratory of Ultra high-Energy Physics of St. Petersburg State University Specialty 01.04.16 - physics of the atomic nucleus and cosmic rays Professional experience: since 1973 Member of the ALICE experiment at the Large Hadron Collider: since 1992 Member of the European research network ENLIGHT (The European Network for LIGHT ion Hadron Therapy): since 2004</p>
Контакты	<p>+7 9215789531 grigory-feofilov@yandex.ru</p>
1) Lecture	<p>14:45-15:15 Lecture: Manjit Dosanjh, CERN «From physics to medical applications »</p>

	<p>Educational goal</p> <p>The lecture «From physics to medical applications » will currently introduce new technologies coming from physics which are being used for the state of the art application in medicine to the participants which will include a broad audience of radiologists, ultrasound specialists, radiologists and oncologists.</p> <p>The importance of the role that collaboration has played making LHC and the discovery of Higgs and how this has been translated to the complex multidisciplinary platform for hadron therapy as the ENLIGHT (European Network for Light Ion Hadron Therapy) network which is presently coordinated by Manjit Dosanjh at CERN has successfully managed to gather together and share information with in the traditionally separate communities of clinicians, physicists, biologists and engineers, in order to provide the most advanced and high-technology method of treatment.</p> <p>Expected results: participants will receive the updated knowledge about developments of the European Center for Nuclear Research in the field of low-dose x-ray and PET diagnostics, new multimodal endoscopic probes including PET and combinations of TOFPET-US, the time-of-flight techniques of PET and ultrasound; Multimodal PET and CT diagnostic systems.</p> <p>The lecture includes: the basics of particle therapy - from history to current status, the information on the ENLIGHT community and its goals, on the role of CERN in the development of applications to medicine, to biomedical research, on the program of MEDICIS project.</p> <p>The general world situation with diagnostics and treatment of oncological diseases, trends and challenges of highly effective radiotherapy methods will be also described.</p> <p>Participants will get the useful information on the existing skills, approaches, as well as their impact on clinical practice or broader professional competencies.</p>
	<p>Manjit Dosanjh, PhD,</p> <p>Senior Advisor for Medical Applications</p> <p>CERN 1999- current</p> <p>ENLIGHT coordinator: 2006- current</p> <p>BSc Hons, University of Leeds, England</p> <p>PhD, University of Birmingham, England</p>

	<p>MIT, USA Post Doc Berkeley, USA, Senior Scientist</p> <p>82 papers, 1720 citations</p>
	<p>Tel.: tel:+41227671791 manjit.dosanjh@cern.ch</p>
	<p>00:25-00:30 discussion (05 МИН)</p>
2) Lecture	<p>15:15-15:45 Ramona Mayer, “Do we need hadron therapy: medical doctors point of view”</p> <p>Educational goal In recent years, there has been increasing evidence that radiation oncology with ion beams has the potential to increase the local control rate and survival in many types of tumors while improving the quality of life in cured patients. The main educational goal of this lecture is to share the experience of particle therapy worldwide</p>
	<p>Expected results (outcomes)</p> <p>To understand that ion beam therapy can be seen as one part, as one pillar of modern multimodality cancer treatment. Further it should be understood that the potential of particle therapy can only be exploited if a full integration of particle therapy into clinical environments and interdisciplinary treatment strategies and if new medical and technologic advances are properly incorporated into the total treatment process.</p>
	<p>Univ.Prof. Ramona Mayer, MSc Former Medical director of MedAustron , Austria</p> <p>Graz, Austria</p> <p>Therapeutic Radiology and Oncology 1996</p> <p>24 years experience in the speciality</p> <p>105 pappers , 3260 citations</p>
	<p>+43 664 200 8818 mayer.austria@gmx.at</p>

	00:00-00:00 discussion (05 МИН)
3) Lecture	15:45-16:15 Bleddyn Jones, The Radiobiology of Proton Therapy: Challenges and Opportunities to Overcome RBE-related Problems. Educational goal This lecture will cover present knowledge of Relative Biological Effectiveness (RBE), which is used in the medical prescription of protons and other ions. This information will be useful to Radiation Oncologists, Biologists, Radiologists and Medical Physicists. If the RBE is incorrect, then tissue dose may be incorrect. So it is important to determine RBE in a range of tumours and normal tissues, and how it varies with dose and the variations in linear energy transfer (LET) along each beam.
	Expected results (outcomes) The general principles of RBE were learned from fast neutron experiments in cells and animal systems. Such information is relevant to high LET parts of proton or ion beams within Bragg peaks, since neutron collisions result in recoil protons and other ions, and so are similar to the conditions within the Bragg peaks. Relatively simple mathematical models are explained: based on experimental data, they include bio-saturation effects and provide parameters that modify linear quadratic radiation effects. These provide reasonable estimates of RBE ranges for different types of tissues and tumours, and should be better inform clinical applications. This would make proton therapy both safer and more effective than relying on a constant RBE of 1.1 in all tissues and at all doses (the present international method), but which is open to extensive criticism).
	Bleddyn Jones Title: Prof. Position: Professor of Clinical Radiobiology Affiliation: University of Oxford Address: Gray Laboratory, Dept of Oncology, Old Road Campus Research Building, Oxford OX3 7DQ, Country: United Kingdom United Kingdom – Royal College of Radiologists (London), 1988.

	<p>37 years in Radiation Oncology and Radiobiology</p> <p>170 publications (clinical and scientific), Co-editor of first text-book on Radiobiological Modelling and author of recent textbook on clinical radiobiology of protons.</p>
	<p>Tel. 07710444654</p> <p>Email: bleddyn.jones@oncology.ox.ac.uk</p>
	<p>00:00-00:00</p> <p>Discussion (05 МИН)</p>
	<p>00:00-00:00</p> <p>BREAK FOR 15 min (15 МИН)</p>
<p>4) Lecture Mikhailov Aleksei, The Proton therapy center of the Medical Institute named after Berezin Sergey, Saint-Petersburg, Russia //Центр протонной терапии в СПб</p>	<p>16:30-17:00</p> <p>"Proton therapy in the complex treatment of breast cancer"</p> <p>Mikhailov Aleksei, Proton therapy center of the Dr. Sergey Berezin Medical Institute Saint-Petersburg, Russia</p>
	<p>Lecture: "Proton therapy in complex treatment of breast cancer"</p> <p>Mikhailov Aleksei, Proton therapy center of the Dr. Sergey Berezin Medical Institute.</p> <p>Lecture "Proton therapy in the complex treatment of breast cancer" aims to introduce the participants to the current practice of proton therapy in complex treatment of breast cancer.</p> <p>Information is relevant for a wide audience of radiologists, radiation oncologists and oncologists.</p>
	<p>Expected results: participants will receive the new knowledge about the developments in Saint-Petersburg in the field of advanced diagnostics and</p>

	proton beams treatment of oncology diseases.
5) Report Развитие протонной терапии в ПИЯФ НИЦ КИ	17:00-17:30 “Experience in proton therapy with beam energy 1000 MeV” Oleg Korytov, Russian Scientific Center of Radiology and Surgical Technologies n.a. A.M. Granov, St-Petersburg
	Educational goal The lecture will provide the participants with information about current status of proton therapy in RSCRST, which cooperates with PINP over use of proton beam for treating patients. Participants will receive knowledge about “Gatchina method” of treating intracranial targets with proton beam 1 GeV. This method of proton therapy is different from typical irradiation technique, which uses Bragg peak. “Fly through” system is based upon patient rotation at the procedure table with fixed position of proton beam. Effectiveness and safety of this method was proven by fundamental preclinical research, involving cell cultures, drosophila melanogaster, transplanted tumors and different experimental animals.
	Expected results (outcomes): participants will receive the updated knowledge about the status of a so-called “Gatchina method” of the patient’s treatment with pituitary adenomas and arteriovenous malformations carried out by the specialized medical institute Russian Scientific Centre of Radiology and Surgical Technology (RSCRST) using the proton beams at the PNPI synchrocyclotron, in Gatchina.
	Lecturer: Oleg Korytov Russian Scientific Center of Radiology and Surgical Technologies named after A.M. Granov, St-Petersburg,
	phone (812) 596-84-62 e-mail: info@rrcrst.ru
6) Report Vladimir Zherebchevsky, SPbSU « Theranostics: new methods for radionuclide	17:30-18:00 Vladimir Zherebchevsky, SPbSU , « Theranostics: new methods for radionuclide therapy and diagnostics»

<p>therapy and diagnostics»</p> <p>//Тераностика: новые методы радионуклидной терапии и диагностики</p>	
	<p>Educational goal</p> <p>The report "Theranostics: new methods for radionuclide therapy and diagnostics" will give to the participants the new knowledge about the important role of novel radionuclides for diagnostics (by Positron Emission Tomography and Single Photon Emission Computed Tomography methods) and in therapy (radio-immuno-therapy, peptide receptor radionuclide therapy) .</p> <p>Merging imaging and therapy to Theranostics (a neologism arising from therapy based on diagnostics), in order to diagnose and treat chronic illnesses such as cancer, is capable to give us an excellent result with the minimal side effects. The patient will receive first a cancer-selective vector labeled with a diagnostic radionuclide and then therapy with this radionuclide will be adapted accordingly. Thus the optimum treatment efficacy with minimum side effects can be achieved in this type of personalized medicine.</p>
	<p>Expected results (outcomes)</p> <p>Participants will receive the updated knowledge about the new methods for radionuclide therapy and diagnostics based on the application of novel types of radionuclides.</p> <p>The lecture includes: the basics of radionuclide therapy and diagnostics, new methods for radionuclide therapy and diagnostics, as well as the new information on the collaboration of St.-Petersburg Institutes for development of novel radionuclides to be used in these methods.</p> <p>Participants will get the useful information on the existing skills, approaches, as well as their impact on the clinical practice or broader professional competencies.</p>
	<p>Lecturer</p> <p>Vladimir Zherebchevsky, SPbSU PhD, assystent professor, Head of Laboratory, Saint-Petersburg State University Work experiece in the specialty- 15 years. Number of papares published: 30, 191 citations</p>
	<p>Tel. +7 9117699364 e-mail: v.zhrebchevsky@spbu.ru</p>