



UNIVERSITÉ  
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## 46<sup>th</sup> Annual Meeting of the European Radiation Research Society (ERRS 2021), November 26<sup>th</sup> - November 30<sup>th</sup> 2021, Caen, France

### Welcome !

We would like to welcome you to the 46<sup>th</sup> Annual Meeting of the European Radiation Research Society (ERRS 2021), which will be held at Centre Francois Baclesse, situated at University Of Caen Normandy Hospital Center, France, from **November 26<sup>th</sup>** until **November 30<sup>th</sup> 2021**. The ERRS meeting series is part of the European conferences on radiation research started in 1953. Our intention is to organize the ERRS 2021 congress as a physical meeting if the COVID-19 situation allows us, otherwise, the meeting will be organized digitally.

We are convinced that the research and educational activities that are carried out in the city of Caen at the *University of Caen Normandy*, CEA, CNRS and other organizations can provide an excellent environment for a fruitful and productive meeting. The University's strong research environments include, for instance Cancer, Neuroscience, Nuclear Sciences, Hadron Radiotherapy, Radiobiology, and the establishment of the facilities such as *Ganil*, *Spiral 2* and recently the construction of *Cyclotron 400 (C400)* for clinical and research uses that will have a significant impact on future scientific development in life sciences.

The Congress will be an opportunity to discuss challenges and to share knowledge and experiences, to discover new research frontiers, and to generate new ideas, plans and collaborations.

We are confident that the 46<sup>th</sup> Annual Meeting of the European Radiation Research Society (ERRS 2021) will represent an unforgettable personal and professional experience for all participants as well as provide good networking for their scientific careers. Finally, we look forward to welcoming you in Caen.

On behalf of the Organizing Committee

Siamak HAGHDOOST, Chair, Professor, University of Caen Normandy, GANIL/CIMAP

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# Program

## Friday 26 of November

<b>12:00</b>	<b>Registration</b>
<b>14:00 - 14:40</b>	<b>Opening ceremony Centre François Baclesse educational department</b> <i>Chair: Prof. Siamak Haghdoost, UniCaen</i>
<i>14:00-14:10</i>	<b>Professor Marc-André Mahe</b> , general director Centre Francois Baclesse.
<i>14:10-14:20</i>	<b>Pr. Lamri Adoui</b> , president of the University of Caen Normandy.
<i>14:20-14:30</i>	<b>Will be announced later</b>
<i>14:30.14:35</i>	<b>Dr. Georgia Terzoudi</b> , president of ERRS.
<i>14:35.14:40</i>	<b>Dr. Jean-Pierre Pouget</b> , French society of radiobiology.
	<b>Information from organizers</b>
<b>14:50 - 15:50</b>	<b>Opening lecture</b> <i>Chair: Prof. Jacques Balosso, Centre Francois Baclesse, Caen</i>
	<b>Professor Roberto Orecchia</b> , Department of Radiation Oncology, IEO Milan, Italy, Clinical outcomes, development and future directions of Carbon Ion RadioTherapy (CIRT) worldwide and in Europe.
<b>17:00 - 21:00</b>	<b>Get together: Guided tour of town hall and mingle at "salle du Duc Rollon"</b> , welcome address by: <b>Dr Dominique Goutte</b> , Vice President of Caen La Mer

## Saturday 27 of November

<b>8:30 - 9:30</b>	<p><b>Keynote speaker 1</b></p> <p><i>Chair: Dr. Jean-Pierre Pouget, INSERM, Institut de Recherche en Cancérologie de Montpellier, France</i>  <i>Co-chair: Dr. Mira Hammad, UniCaen, CIMAP/Aria, Caen</i></p> <p><b>Fabrizio D'adda Di Fagagna</b>, Principal Investigator, Institute of Molecular Genetics, National Research Council, Pavia, Italy. Non-coding RNA synthesis at DNA lesions.</p>
<b>9:30 - 10:00</b>	<b>Coffee</b>
<b>10:00 - 11:30</b>	<p><b>Invited Lectures</b></p> <p><i>Chair: Dr. Samuel Valable, CNRS, Caen</i>  <i>Co-chair: Prof. Martin Falk, Czech Republic</i></p> <p><i>10:00-10:30</i> <b>Roel Quintens</b>, PhD, Senior scientist, Radiobiology Unit SCK-CEN, Belgium. Molecular signature of radiation exposure.</p> <p><i>10:30-11:00</i> <b>Claudia E. Rube</b>, Professor, Clinic for Radiation Therapy and Radiation Oncology, Saarland University Medical Center, Homburg, Germany, DNA damage and Neurogenesis.</p> <p><i>11:00-11:30</i> <b>Davide Cinat</b>, Department of Radiation Oncology, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands, Differential inflammatory response between photons and protons in salivary gland organoids.</p>
<b>11:30 - 12:30</b>	<p><b>Session 1</b></p> <p><i>Chair: Dr. Serge Candéias, CEA, France</i>  <i>Co-chair: Dr. Carine Laurent, ABTE, Caen</i></p> <p><i>11:30-11:50</i> <b>Nolwenn Pasquet</b>, CNRS, Caen, Overcoming hypoxia-induced radioresistance of glioblastoma cells by hadrontherapy.</p> <p><i>11:50-12:10</i> <b>Traimate Sangsuwan</b>, Stockholm University, Sweden, Oxidative stress levels and DNA repair kinetics in senescent primary human fibroblasts exposed to low- or high-dose-rates of ionizing radiation.</p> <p><i>12:10-12:30</i> <b>Soile Tapio</b>, Helmholtz Zentrum München, Germany, Data-Independent Acquisition Proteomics Reveals Long-Term Biomarkers in the Serum of C57BL/6J Mice Following Local High-Dose Heart Irradiation.</p>

<p>(G1) 12:30 - 13:30</p> <p>(G2) 13:30 - 14:30</p>	<p><b>Lunch</b></p> <p><i>Chair: Prof. Siamak Haghdoost, UniCaen, France</i></p> <p>13:00-13:20, <b>Dr. Anna Fogtman</b>, European Space Agency (ESA): presentation of ESA science.</p> <p>13:40-14:00, <b>Dr. Héloïse Goutte</b>, GANIL: presentation of GANIL facility, key features and research activities.</p>
<p>14:30 - 15:30</p>	<p><b>Keynote speaker 2</b></p> <p><i>Chair: Dr Soile Tapio, Helmholtz Zentrum München, Germany</i> <i>Co-chair: Dr. Mathieu Cesaïre, Centre Francois Baclesse, Caen</i></p> <p><b>Joanna Polanska</b>, Professor of Bioinformatics at the Silesian University of Technology, Gliwice, Poland, Title: Bioinformatics methods for functional genomics in radiation research</p>
<p>15:30 - 16:30</p> <p>15:30-15:50</p> <p>15:50-16:10</p> <p>16:10-16:30</p>	<p><b>Session 2</b></p> <p><i>Chair: Dr. Georgia Terzoudi, Athens, Greece</i> <i>Co-chair: Dr. Elodie Pérès, UniCaen, France</i></p> <p><b>Carine Laurent</b>, ABTE-ToxEMAC laboratory, Caen, France, Differential normal skin transcriptomic response in total body irradiated mice exposed to scattered versus scanned proton beams.</p> <p><b>Martin Falk</b>, Institute of Biophysic, Czech Academy of Sciences, Czech Republic, Functional Micro- and Nano-Scale Architecture of DNA Double Strand Break Repair Foci (IRIFs) in Normal and Cancer Cells, Implications for DSB Repair and Cell Radiosensitivity.</p> <p><b>Katalin Lumniczky</b>, National Public Health Centre, Hungary, Extracellular vesicles in ionizing radiation-induced leukaemias.</p>
<p>16:30 - 16:50</p>	<p><b>Coffee</b></p>
<p>16:50 - 17:40</p>	<p><b>Poster viewing 1</b></p>
<p>17:40 - 18:20</p>	<p><b>Young investigator awardee presentations</b></p> <p><i>Chair: Dr. Georgia Terzoudi, Athens, Greece</i> <i>Chair: Dr. François Chevalier, CEA/CIMAP/Aria, Caen</i></p>

<i>17:40-17:50</i>	<b>Elien Beyls</b> , SCK-CEN, Belgium, Skin problems in space: mimicking the spaceflight environment in the lab.
<i>17:50-18:00</i>	<b>Mira Hammad</b> , UniCaen, France, Effects of combined particle irradiation and oxidative stress response inhibitor on survival and differentiation process of primary human stem cells.
<i>18:00-18:10</i>	<b>Antoine Gilbert</b> , UniCaen, France, Impact of Hypoxia and Hadrontherapy on Radioresistant Chondrosarcoma Cancer Stem Cells.
<i>18:10-18:20</i>	<b>Nadia Boroumand</b> , SU, Sweden, Cancer-related changes in cells exposed to alpha radiation in combination with nicotine.

## Sunday 28 of November

<b>8:30 - 9:30</b>	<p><b>Keynote speaker 3</b></p> <p><i>Chair: Dr. François Chevalier, CEA/CIMAP/Aria, Caen</i>  <i>Co-chair: Antoine Gilbert, UniCaen</i></p> <p><b>Serge Candéias</b>, Senior researcher, CEA, Université Grenoble Alpes, CNRS, IRIG-LCBM, Grenoble, France. Title of talk: Long-term immuno-modulatory effects of ionizing radiation.</p>
<b>9:30 - 10:00</b>	<p><b>Coffee</b></p>
<b>10:00 - 11:30</b>	<p><b>Invited Lectures</b></p> <p><i>Chair: Prof. Joanna Polanska, the Silesian University of Technology, Gliwice, Poland</i>  <i>Co-chair: Dr. Teni Ebrahimian, IRSN, France</i></p> <p><i>10:00-10:30</i> <b>Juliette Thariat</b>, Professor, Centre François Baclesse, Caen, France. Prediction of tissue reactions in the era of precision radiotherapy.</p> <p><i>10:30-11:00</i> <b>Claudia Founier</b>, Professor, Immune system and tissue radiobiology, GSI Helmholtzzentrum, Darmstadt, Germany. Title of talk: Genetic risk and therapeutic use of exposure to low doses of radon – two sides of the same coin.</p> <p><i>11:00-11:30</i> <b>Isabelle Thierry-Chef</b>, Head of the Medical Radiation Group, Institute for Global Health, Barcelona, Spain. Title of talk: Adverse health risk from medical use of radiation in pediatrics.</p>
<b>11:30 - 12:30</b>	<p><b>Session 3</b></p> <p><i>Chair: Prof. Geza Safrany, Budapest, Hungary</i>  <i>Co-chair: Dr. Myriam Bernaudin, CNRS, Caen</i></p> <p><i>11:30-11:50</i> <b>Teni Ebrahimian</b>, IRSN, France, Low to moderate dose <math>^{137}\text{Cs}</math> (<math>\gamma</math>) radiation enhances M2 type macrophages function at short term associated with reduced inflammation at long term exposure in ApoE(-/-) mice.</p> <p><i>11:50-12:10</i> <b>Helmut Schöllnberger</b>, Helmholtz Zentrum München, Germany, Radio-biologically motivated modeling of radiation risks of mortality from ischemic heart diseases in the Canadian fluoroscopy cohort study.</p>
<b>(G1)</b> <b>12:10 - 12:50</b>	<p><b>Lunch</b></p> <p><i>Chair: Prof. Jacques Balosso, Centre Francois Baclesse, Caen</i></p>

<b>(G2)</b> <b>12:50 - 13:30</b>	Sponsor presentation (13:00-13:20) by <b>Dr. Claude Dupont</b> , IBA
<b>13:30 - 14:30</b>	<b>Poster viewing 2</b>
	<b>Social activity, guided tour of “Mémorial de Caen”</b>



## Monday 29 of November

<b>8:30 - 9:30</b>	<p><b>Keynote speaker 4</b></p> <p><i>Chair: Dr. Peter Sminia, University of Amsterdam, The Netherlands</i>  <i>Co-chair: Dr. Mira Hammad, UniCaen, CIMAP/Aria, Caen</i></p> <p><b>Karine Van Doninck</b>, professor, Université Libre de Bruxelles (ULB) and University of Namur (UNamur), Belgium. Preliminary title: mechanism/s underlying extreme radio-resistance.</p>
<b>9:30 - 10:00</b>	<p><b>Coffee</b></p>
<b>10:00 - 11:30</b>	<p><b>Invited Lectures</b></p> <p><i>Chair: Dr. Marc Benderitter, IRSN, France</i>  <i>Co-chair: Soukaina Kawni, UniCaen, France</i></p> <p><i>10:00-10:30</i> <b>Mahmoud Moustafa</b>, German Cancer Research Center, Heidelberg, Germany, Targeted trapping of TGFbeta in the PDL1+ cellular compartments reprograms cold tumors and simultaneously attenuates normal tissue toxicity.</p> <p><i>10:30-11:00</i> <b>Nicolas Foray</b>, Head of “Radiation: Defense, Health, Environment” INSERM, Lyon, France, Title: The radiation-induced nucleoshuttling of the ATM protein, a unified mechanistic model to better understand radio-sensitivity/susceptibility.</p>
<b>11:00 - 12:00</b>	<p><b>Session 4</b></p> <p><i>Chair: Dr. Nicolas Foray, Inserm, France</i>  <i>Co-chair: Rima Salma, UniCaen, France and Uppsala University, Sweden</i></p> <p><i>11:00-11:20</i> <b>Mihaela Tudor</b>, Horia Hulubei National Institute for R&amp;D in Physics and Nuclear Engineering (IFIN-HH), Romania, Charged Particle Irradiation Effects on Human Chondrosarcoma Cells.</p> <p><i>11:20-11:40</i> <b>Valerio Ricciardi</b>, Istituto Nazionale di Fisica Nucleare, section of Naples, Italy, Increasing the biological effectiveness of protontherapy through the Proton-Boron Capture Therapy approach: novel insights from monochromatic low-energy and clinical high-energy proton beam irradiations.</p> <p><i>11:40-12:00</i> <b>Elise Konradsson</b>, Lund University, Sweden, Hypofractionated FLASH radiotherapy versus conventional radiotherapy in an immunocompetent rat glioma model.</p>
<b>(Group1)</b> <b>12:00 - 13:00</b>	<p><b>Lunch and ERRS COUNCIL member meeting (12:30-13:30)</b></p> <p><i>Chair: Dr. Mira Hammad, UniCaen, CIMAP/Aria, Caen</i></p>

<p><b>(Ggroup2)</b> <b>13:00 - 14:00</b></p>	<p>Sponsor presentations; 13:00-13:20: Alliance Bio Expertise, 13:25-13:45 Actemium/Precision X-Ray Irradiation</p>
<p><b>14:00 - 15:00</b></p>	<p><b>Bacq &amp; Alexander Award by ERRS</b>  <i>Chair: Dr. Georgia Terzoudi, president of ERRS, Greece</i>  <b>Prof. Michael J. Atkinson</b>, Technical University of Munich and Helmholtz Zentrum, Germany, Changing the radiation biology paradigm with “Omics”?</p>
<p><b>15:00 - 16:00</b></p> <p><i>15:00-15:30</i></p> <p><i>15:30-16:00</i></p>	<p><b>Invited Lectures</b>  <i>Chair: Joanna Polanska, the Silesian University of Technology, Gliwice, Poland</i> <i>Co-Chair: Rima Salma, Unicaen and Uppsala University</i>  <b>Julie Nonnekens</b>, Assistant Professor, Erasmus University Medical Center, Rotterdam Netherlands, Targeted radiotherapy. <b>Noami Daems</b>, PhD, scientist, SCK-CEN, Belgium, use of nano-particles as radiosensitizers”.</p>
<p><b>16:00 - 16:30</b></p>	<p><b>Coffee</b></p>
<p><b>16:30 - 17:30</b></p> <p><i>16:30-16:40</i></p> <p><i>16:40-16:50</i></p> <p><i>16:50-17:00</i></p> <p><i>17:00-17:10</i></p>	<p><b>Young investigator awardee presentations</b>  <i>Chair: Dr. Peter Sminia, University of Amsterdam, The Netherlands</i> <i>Co-chair: Prof. Jacques Balosso, Centre Francois Baclesse, Caen</i>  <b>Pamela Akuwudike</b>, SU, Sweden, Cell-type specific differences in the competitive relationship between cell killing and accumulation of carcinogenic DNA lesions following fractionated radiation exposure.  <b>Pei Pei Che</b>, UMC, the Netherlands, An in vitro 3D co-culture model of pancreatic ductal adenocarcinoma and stellate cells for preclinical assessment of chemo-radiotherapy.  <b>Karin Nuijens</b>, UMC, the Netherlands, Gamma-H2AX Foci Decay Ratio as a Stronger Predictive Factor of Late Radiation Toxicity Than Dose-Volume Parameters in a Prospective Cohort of Prostate Cancer Patients.  <b>Silvana Ferreira</b>, SCK-CEN, Belgium, Effects of the space environment on the activation of T-Cells.</p>

<i>17:10-17:20</i>	<b>Eline Radstake</b> , U-Gent, SCK-CEN, Belgium, Cryopreserved whole blood and isolated peripheral blood mononuclear cells as alternative sample types for the cytokinesis-block micronucleus assay.
<i>17:20-17:30</i>	<b>Stefan Roobol</b> , EUMC, the Netherlands, Live single cell tracking and deep learning-based analysis of DNA damage induction and repair following beta particle radionuclide therapy.
<b>17:30 - 18:30</b>	<b>Free time</b>
<b>18:30 - 22:30</b>	<b>Congress dinner, Le Mancel Restaurant du Château</b>

## Tuesday 30 of November

<b>8:30 - 9:30</b>	<p><b>Keynote speaker 5</b></p> <p><i>Chair: Dr. Anne Marie Frelin, GANIL, France</i>  <i>Co-chair: Samuel Eden, Open University, UK</i></p> <p><b>Jaroslav Kocisek</b>, Senior scientist, Institute of Physical Chemistry of the Czech Academy of Sciences, Prague, Czech Republic          Title: Interaction of secondary low-energy electrons with DNA and its components.</p>
<b>9:30 - 10:30</b>	<p><b>Coffee and ERRS General Assembly</b></p>
<b>10:30 - 12:00</b>	<p><b>Invited Lectures</b></p> <p><i>Chair: Dr. Jaroslav Kocisek, Institute of Physical Chemistry of the Czech Academy of Sciences, Czech Republic</i>  <i>Co-chair: Dr. Nolwenn PASQUET, Unicaen, France</i></p> <p><i>10:30-11:00</i> <b>Giorgio Biaocco</b>, Senior researcher, Radiation Biophysics and Radiobiology group, University of Pavia, Italy. Title: A matter of space: from radiation transport to track-structure effects at the subcellular level.</p> <p><i>11:00-11:30</i> <b>Pablo Cirrone</b>, Professor of Medical Physics, National Institute of Nuclear Physics-Southern National Laboratories, Catania, Italy, Study and implementation of new Monte Carlo algorithms for the linear energy transfer and biological damage evaluation for ion beams at the micro- and nano-scale.</p> <p><i>11:30-12:00</i> <b>Daniel Cussol</b>, Senior researcher, LPC Caen IN2P3/ENSICAEN/Université de Caen: Title: Using light ions for radiation therapy: a nuclear physicist view.</p>
<b>12:00 - 13:00</b>	<p><b>Session 5</b></p> <p><i>Chair: Dr. Daniel Cussol, EnsiCaen, France</i>  <i>Co-chair: Dr. Giorgio Baiocco, Univesity of Pavia, Italy</i></p> <p><i>12:00-12:20</i> <b>Christian Schunck</b>, MetaSystems, Germany, Standardized and Automated Biological Dosimetry.</p> <p><i>12:20-12:40</i> <b>Sergey Denisov</b>, Université Paris-Saclay, France, ELYSE electron accelerator as a tool for FLASH-radiotherapy studies in kilo to Giga Gy per second.</p> <p><i>12:40-13:00</i> <b>Alice Mentana</b>, University of Pavia, Italy, Dosimetry at the subcellular scale: Modeling in vitro exposures to tritiated particles within the TRANSAT project.</p>
<b>13:00-13:30</b>	<p><b>Closing ceremony</b></p>

