PROGRAM

Advanced Radiotherapy, Generated by Exploiting Nanoprocesses and Technologies

Argent

INTERNATIONAL CONFERENCE

Advanced Radiotherapy, Generated by Exploiting Nanoprocesses and Technologies

Chair: Prof. Sandrine Lacombe - U.Paris-Sud, U.Paris-Saclay

January 22-24, 2018

CNRS, U.Paris-Saclay, Gif-sur-Yvette (Paris region), France

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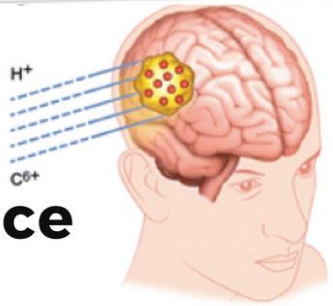

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Conference Venue:

IMAGIF Conference Center, CNRS campus of Gif-sur-Yvette (southern Paris region).
IMAGIF - I2BC, Building 21, 1, avenue de la Terrasse, 91190 Gif-sur-Yvette, France

Monday, January 22nd, 2018

8:00 - 9:00	**Registration and poster installation, Welcome coffee**
9:00 - 10:00	**OPENING SESSION**
9 :00 – 9 :20	**Sandrine Lacombe** *(University Paris-Sud, CNRS, University Paris-Saclay – Orsay, France),* **Chair of conference** – **ARGENT: a Marie Sklodowska-Curie ITN project dedicated to "Advanced Radiotherapy, Generated by Exploiting Nanoprocesses and Technologies"**
9 :20 – 10 :00	**Kate Ricketts** *(University College London – London, United Kingdom)* **– An overview of nanomedicine in radiotherapy: Towards clinical implementation of metallic nanoparticles in photon and proton beam therapy**
10:00 - 11:00	**SESSION I (Part 1) : BIOLOGICAL EFFECT OF NANOPARTICLES COMBINED WITH PROTON OR PARTICLE THERAPY** ***Chair: M. Dutreix*** *(Institut Curie, CNRS, University Paris-Saclay - Orsay, France)*
10:00 - 10:30	**Alexandre Detappe** *(Dana-Farber Cancer Institute/Harvard Medical School, David H Koch Institute for Integrative Cancer Research, MIT – Boston, United States),* **Invited speaker - Nanoparticles for enhanced image-guided radiation therapy in pancreatic cancer**
10:30 – 11:00	**Jong-Ki Kim** *(Catholic University of Daegu – Daegu City, Korea),* **Invited speaker - Site-specific Coulomb nanoradiator therapy**
11:00 - 11:30	**Coffee break and Poster session**
11:30 - 13:00	**SESSION I (Part 2) : BIOLOGICAL EFFECT OF NANOPARTICLES COMBINED WITH PROTON OR PARTICLE THERAPY** ***Chair: K. Butterworth*** *(Queen's University Belfast – Belfast, United Kingdom)*
11:30 – 12:00	**Stéphane Lucas** *(University of Namur – Namur, Belgium),* **Invited speaker – Conjugated gold nanoparticle radiosensitizers: an in vitro, in vivo and computer modelization study**
12:00 - 12:15	**Sandrine Lacombe** *(University Paris Sud, CNRS, University Paris Saclay – Orsay, France)* **– Effects of nanoparticles combined with medical ion radiation: influence of hypoxia and uptake dynamics – ARGENT project**

12:15 - 12:30	**Soraia Rosa** *(Queen's University Belfast – Belfast, United Kingdom)* – **Gold Nanoparticle Coating Toxicity and Radiosensitizing effect with X-rays in Prostate Cancer** – **ARGENT project**
12:30 - 12:45	**Sophie Grellet** *(Open University – Milton Keynes, United Kingdom)* – **Selective cancer cell toxicity and radiosensitisation using coated gold nanoparticles** – **ARGENT project**
12:45 - 13:00	**Discussion**
13:00 - 14:30	**Lunch** *(« La Rotonde » Restaurant)*
14:30 - 16:00	**SESSION II (Part 1): ELEMENTARY MECHANISMS AND NANODOSIMETRY** ***Chair: G. Garcia*** *(CSIC – Madrid, Spain)*
14:30 - 15:00	**Anatoly Rozenfeld** *(University of Wollongong – Wollongong, Australia)*, **Invited speaker** – **Innovative solid state microdosimeters for RBE evaluation in particle therapy**
15:00 - 15:30	**Hans Rabus** *(Physikalisch-Technische Bundesanstalt (PTB) - Braunschweig , Germany)*, **Invited speaker** – **Nanodosimetry of nanoparticles - metrological aspects**
15:30 – 15:45	**Ali Traore** *(CSIC – Madrid, Spain)* – **Low energy scattering model in medical radiation planning: experiment and simulation** – **ARGENT project**
15:45 – 16:00	**Discussion**
16:00 - 16:30	**Coffee break and Poster session**
16:30 - 18:00	**SESSION II (Part 2): ELEMENTARY MECHANISMS AND NANODOSIMETRY** *(Imagif - Auditorium)* ***Chair: E. Scifoni*** *(TIFPA – Trento, Italy)*
16:30 - 17 :00	**Gérard Baldacchino** *(CEA, CNRS, University Paris Saclay – Gif-sur-Yvette, France)* **Invited speaker** - **Alpha-beam nano-radiation chemistry**
17 :00 - 17:15	**Arkadiusz Mika** *(CIMAP, GANIL, CEA – Caen, France)* – **Studies on the interaction of ions with free metal nanoparticles : new experimental apparatus and first results** – **ARGENT project**
17:15 - 17:30	**Félicien Hespeels** *(University of Namur – Namur, Belgium)* - **Backscattered electron emission after proton impact on gold nanoparticles with and without PPAA functionalization**
17:30 - 17:45	**Stefanie Vogel** *(University of Potsdam, Federal Institute for Materials Research and Testing, School of Analytical Science Adlershof – Potsdam, Germany)* – **VUV and LEE induced ssDNA Strand Breaks – Dependency on the DNA sequences and irradiation type**

17:45 – 18:00	**Discussion**
18:00	**Welcome cocktail reception** *(Château CNRS, avenue de la Terrasse, Gif-sur-Yvette)*
20:00	**End of Day 1**

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Tuesday, January 23rd, 2018

8:00 - 9:00	**Registration, Welcome coffee** *(Imagif - Main hall)*
9:00 - 10:30	**SESSION III (Part 1): NANOMATERIALS FOR RADIATION-BASED CANCER THERAPIES** ***Chair: S. Lucas*** *(University of Namur – Namur, Belgium)*
9:00 - 9:30	**Sunil Krishnan** (*Center for Radiation Oncology Research, University of Texas MD Anderson Cancer Center - Houston, United States*), **Invited speaker – Gold nanoparticle radio-sensitization - lessons learned and future directions**
9:30 - 10:00	**Ruxandra Gref** *(CNRS, University Paris Saclay – Orsay, France)*, **Invited speaker - Plateform of "cage" core-shell nanoparticles for triggered drug delivery**
10:00 - 10:15	**Vivek Thakare** *(Chematech – Dijon, France)* **– Developing building blocks for cancer theranostics – ARGENT project**
10:15 - 10:30	**Sébastien Penninckx** *(University of Namur – Namur, Belgium)* **– Unravelling the mechanism responsible for the radiosensitization effect of gold nanoparticles in protontherapy**
10:30-11:00	**Coffee break and Poster session**
11:00 - 12:30	**SESSION III (Part 2): NANOMATERIALS FOR RADIATION-BASED CANCER THERAPIES** ***Chair: R. Gref*** *(CNRS – Orsay, France)*
11:00 - 11:30	**Marie Dutreix** *(Institut Curie, CNRS, University Paris-Saclay - Orsay, France)* **Invited speaker – Radiosenzitisation with a new generation of DNA repair inhibitors, AsiDNA**
11:30 - 11:45	**Romain Grall** *(CEA, University Paris Saclay –Fontanay-aux-Roses, France)* **– Platinum nanoparticles to impair cancer radio resistance: impact of ionizing radiation type on biological behaviors**
11:45 -12 :00	**Luís Núñez Martín** *(Hospital Universitario Puerta de Hierro – Madrid, Spain)* **- Study of cell death in JURKAT cells irradiated with RX using advanced technologies based on immunofluorescence processes – ARGENT project**
12:00 - 12:15	**Solveig Reymond** *(CEA – Grenoble, France)* **– Photoactivation of iron nanoparticles for the improvement of glioma treatment**
12 :15 -12 :30	**Discussion**
12:30 - 14:00	**Lunch** *(« La Rotonde » Restaurant)*

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14:00 - 15:30	**SESSION IV (Part 1): SIMULATIONS OF RADIATION EFFECTS** ***Chair: Andrey Solov'yov*** *(MBN Research Center - Frankfurt am Maine, Germany)*
14:00 – 14:30	**Jan Schuemann** ***(****Massachusetts General Hospital - Boston, United States),* **Invited speaker - Can track structure simulations and mechanistic models predict the observed levels of (G)NP-induced radiosensitization?**
14:30 – 15:00	**Eugene Surdutovich** *(Oakland University - Rochester, United States),* **Invited speaker - Applications of multiscale approach to a variety of problems related to irradiation of biological targets with ions**
15:00 – 15:15	**Floriane Poignant** *(University Claude Bernard Lyon 1, CNRS - Lyon, France)* – **Impact of gold nanoparticles on nanodosimetry and radical production**
15:15 – 15:30	**Julian Schneider** *(Synopsys QuantumWise - Copenhagen, Denmark)* **Atomistic simulations of coated gold nanoparticles in physiological environment – ARGENT project**
15 :30 -15 :45	**Group photo**
From 15:45	**Half-day excursions** ***Option A:*** ***Orsay Proton Therapy Center, Institut Curie – guided tour.*** *Transportation by bus. After the tour, the bus will leave the attendees in Paris, at Port Debilly for timely boarding on the cruise ship.* ***Option B:*** ***Accompanied sight-seeing in Paris.*** *Transportation by public transport. Attendees will be accompanied by local PhD students.* ***Option C:*** ***Freetime.***
18:45	*Meeting Port Debilly (in front of the Eiffel Tower: please see access map on the conference's website): Departure for gala dinner*
19:00	**Dining cruise on the Seine river**
23:00	**End of Day 2**

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Wednesday, January 24th, 2018

8:00 - 9:00	**Registration, Welcome coffee** *(Imagif - Main hall)*
9:00 - 10:30	**SESSION IV (Part 2): SIMULATIONS OF RADIATION EFFECTS** ***Chair: E. Surdutovich*** *(Oakland University - Rochester, United States)*
9:00 – 9:15	**Daria Boscolo** *(GSI - Darmstadt, Germany)* - **Nanoscale insights of possible mechanisms of hypoxia radiosensitization with ion beams – ARGENT project**
9:15 - 9:45	**Andrey Solov'yov** *(MBN Research Center – Frankfurt am Maine, Germany)* – **Multiscale approach for quantitative assessment of ion-beam induced damage in biological targets – ARGENT project**
9:45 – 10:00	**Anne-Catherine Heuskin** *(University of Namur – Namur, Belgium)* - **Metallic nanoparticles irradiated by low energy protons for radiation therapy: are there significant physical effects to enhance the dose delivery?**
10:00 – 10:15	**Marios Sotiropoulos** *(The University of Manchester – Manchester, United Kingdom)* **– Monte Carlo simulations of direct DNA damage on gold nanoparticle enhanced proton therapy**
10:15 – 10:30	**Discussion**
10:30 - 11:00	**Coffee break and Poster session**
11:00 - 12:30	**SESSION V (Part 1): MEDICAL AND INDUSTRIAL PERSPECTIVES** ***Chair: K. Ricketts*** *(University College London – London, United Kingdom)*
11:00 – 11:30	**Carsten Welsch** *(University of Liverpool – Liverpool, United Kingdom)*, **Invited speaker - Accelerating cancer therapy**
11:30 –11 :45	**Emilie Bayart** *(ENSTA ParisTech, University Paris-Saclay – Palaiseau, France)* **Laser-pulsed protons for radiotherapy : SAPHIR's experience and beyond**
11 :45 - 12:15	**Walter Tinganelli** *(TIFPA – Trento, Italy)*, **Invited speaker - Radioimmunotherapy for the activation of an Abscopal Effect**
12:15 – 12:30	**Discussion**
12:30 - 14:00	**Lunch** *(« La Rotonde » Restaurant)*
14:00 - 17:15	**SESSION V (Part 2): MEDICAL AND INDUSTRIAL PERSPECTIVES** ***Chair: W.Tinganelli*** *(TIFPA – Trento, Italy)*
14:00 – 14:15	**Rudi Labarbe** *(IBA - Louvain la Neuve, Belgium)* - **How to realize the potential of proton therapy? – ARGENT project**

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14:15 – 14:30	**Francois Lux** *(University of Lyon 1 & NanoH – Lyon, France)* - **AGuIX, translation to the clinic of an ultra-small nanoparticle for radiotherapy** – **ARGENT project**
14 :30 -15 :00	**Jean Louis Habrand** (Centre de lutte contre le cancer François Baclesse – Caen, France) **– Perspectives in hadrontherapy. New opportunities with nanoparticles** – **ARGENT project**
15 :00 -15 :15	**Sandrine Lacombe** *(University Paris-Sud, CNRS, University Paris-Saclay – Orsay, France)*, **Chair of conference – Conclusions**
15:15 - 15:45	**End of conference. Farewell coffee**

16:00 - 18:00	**ARGENT final board meetings *(ARGENT Consortium only)***
18:00	**Final ARGENT consortium's social dinner** *(ARGENT consortium only)*

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