Keynote Speakers

Léon Sanche

Université de Sherbrooke, Canada
0000-0003-0938-439X

MORE INFO

"Interaction of low energy (0-30 eV) electrons with DNA: Fundamental mechanisms and Applications"

Léon Sanche terminated his undergraduate studies in Physics at Laval University, Québec, Canada in 1968. Three years later he obtained a Ph.D. degree from Yale in Engineering and Applied Sciences. Afterwards, he became associate professor at the University of Sherbrooke in Canada, where he held a senior Canadian Research Chair in the Radiation Sciences. His general career goal has been and still is to achieve a global comprehension of the mechanisms of radiation in biological systems and to apply this knowledge to enhance the therapeutic and diagnostic efficiency of radiation. He formed in 1982 a group of the Medical Research Council of Canada. His research has been essentially focused on the action of secondary electrons generated by ionizing radiation in condensed matter, particularly in biological tissue.

Dr. Sanche obtained the Distinguished Scientist Award from the Medical Research Council of Canada and more recently the Marie Curie Fellowship for incoming senior scientists from the European Commission. In 2008, he was elected member of the Academy of Sciences of the Royal Society of Canada.

Ilko Bald

Universitat Potsdam, Germany
0000-0002-6683-5065

MORE INFO

"Interaction of radiation with nanostructures - from DNA strand breaks to plasmon chemistry"

With a distinguished academic record, including the honor of *summa cum laude*, Dr. Ilko Bald finished in 2007 his Ph.D. in Physical Chemistry at the Freie Universität in Berlin, Germany. Afterwards, Dr. Bald proceed to obtain a Postdoc at the University of Iceland, studying the wavelength dependence of MALDI mass spectrometry and electron-induced chemical reactions, and later on, in 2012, he finished another Postdoc at the Interdisciplinary Nanoscience Center (iNANO) in Aarhus University, Denmark.

Since the beginning of the current year, Dr. Bald holds the position of leader of the Hybrid Nanostructures Laboratory in the University of Potsdam. His current research interests focus on the study of physico-chemical processes at the single-molecule level, combining several different techniques to this purpose, such as DNA nanotechnology, optical spectroscopy and scanning probe microscopy (SPM).

Dr. Bald has been awarded the Research Prize from the Polish Radiation Research Society two times, one in 2010 and another in 2016. The following year he received an ERC Consolidator Grant. In 2018 he was awarded with the DEA Club Early Career Award (for pioneering research in dissociative electron attachment (DEA) with biomolecular systems).

Stephen Buckman

ANU College of Science, Australia
0000-0001-7798-4827

MORE INFO

"Positron Interactions with Matter and their Applications on Biology"

Stephen Buckman was born and raised in Sydney, NSW, educated in both Sydney and Adelaide, and is a PhD graduate in Atomic Physics from Flinders University (1979). Following postdoctoral positions at the University of Manchester and the University of Colorado, Buckman returned to Australia in 1983 to take up a Research Fellowship position in the Research School of Physics and Engineering (RSPE) at the ANU. He was appointed to the tenured staff (Fellow) at ANU in 1989. He was subsequently promoted to Senior Fellow (1993) and Professor of Physics (1999). Between 1996 and 2000 he was Head of Department of the Atomic and Molecular Physics Laboratories within the RSPE.

In 2000-2001, he held a Fulbright Senior Fellowship at the University of California and, on his return to Australia, was appointed to Associate Director (Academic) of RSPE. In 2005 he was the lead CI and proponent of a Centre of Excellence bid to the Australian research Council. This bid – to establish the Centre of Excellence for Antimatter-Matter Studies – was successful and Buckman led this Centre, as research Director, from 2006-2012. Buckman was appointed as Director, RSPE, in March 2012.

He is also a Fellow of the American Physical Society, a Fellow of the Institute of Physics UK and a Fellow of the Australian Institute of Physics.

Kevin Prise

Centre for Cancer Research and Cell Biology, QUB, Northern Ireland
0000-0001-6134-7946

MORE INFO

"Understanding proton therapy at the physics/biology interface"

Kevin Prise is Professor of Radiation Biology, Queen's University Belfast, where he has been since 2007. Prior to this, he was Head of the Cell and Molecular Radiation Biology Group at the Gray Cancer Institute in Northwood, London. A Biochemistry graduate of Aberdeen University, he received his PhD in Cell Biology and Biochemistry, from the University of Aberdeen, on the mechanisms of action of the chemotherapeutic methotrexate. He joined the Gray Laboratory in 1985 working with Barry Michael, Melvyn Folkard and Boris Vojnovic, under the directorship of Jack Fowler, Julie Denekamp and Ged Adams.

He is currently Immediate Past-President of the US Radiation Research Society, a previous RRS Michael Fry award recipient and Friedrich Dessauer awardee of the German Radiation Research Societies. He is the 2018 Douglas Lea Lecturer, awarded by the Institute of Physics and Engineering in Medicine and the 2018 Bacq and Alexander awardee from the European Radiation Research Society. Professor Prise has supervised over 45 PhD students and numerous Master and undergraduate students. He has taught on the FRCR Part 1 course at the Christie Hospital for the last 12 years and also launched this course internationally with Prof Catharine West in Kolkata, India in 2015 and Kuala Lumpur, Malaysia in 2017.

David Field

Department of Physics and Astronomy, Aarhus University, Denmark

MORE INFO

"Getting inside spontaneously electrical solids: some dipolar moments"

David Field studied Chemistry at Newcastle University, UK, followed by a PhD at the University of Cambridge. He was later awarded the degree of Doctor of Science by the University of Cambridge. Previously Reader in Physical Chemistry at the University of Bristol, he now researches astrophysics and experimental physics as a professor at the University of Aarhus. He has published over 175 papers in this subject.

He currently works at the Department of Physics and Astronomy, Aarhus University. David does research in Condensed Matter Physics, Atomic, Molecular and Optical Physics and Molecular Physics and the relationship of all these to understanding astronomical observations. For the last decade work has focussed on spontelectric solids, a new form of the solid state discovered in Aarhus, where David player a key role. He is also on the editorial board of Astrobiology.

Aside from academic work, Field is also known for his writing, being the author of a successful fiction series.

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Master Classes

Dr. Søren Hoffmann

Institute for Storage Ring Facilities, University of Aarhus, Denmark
0000-0002-8018-5433

MORE INFO

"Brighter illumination of your chiral samples: Synchrotron Radiation Circular Dichroism"

Søren Hoffmann graduated in Science in Physics at the University of Aarhus in 1994, finishing his Ph.D. in Physics (Surface Science) two years later, with the title *Some geometrical and catalytic aspects of alkali metal adsorption*. In the following years, he participated in the development of several SGM beamlines, until he changed the scientific focus to Synchrotron Radiation Circular Dichroism (SRCD) spectroscopy at ASTRID. As of 2011, Søren Hoffmann holds the position of Head of beam lines at the Faculty of Science and Technology in Aarhus University. In 2018 he was Awarded guest professorship in Nice, France.

With over 235 peer-reviewed papers in international journals, Dr. Hoffmann will give us an overview of the CD and SRCD techniques and discuss the informational content of a CD spectrum. He will also show how to analyze the data for secondary structure content and show some examples on particularly difficult samples.

Dr. Christian Betzel

University of Hamburg, Germany
0000-0002-3879-5019

MORE INFO

"Latest Methods of Dynamic Laser Light Scattering and Applications in Life Sciences"

Dr. Christian Betzel concluded his undergraduate studies in Physics in 1982, at Göttingen University. Four years later he obtained his Ph.D. at the Free University of Berlin, also in Physics. While working as a scientific staff member and also group leader at EMBL-Outstationin in Hamburg, he achieved a habilitation in Chemistry, diversifying his scientifics research interests (later on he would obtain a Ph.D. in Chemistry, attributed by the Academy of Sciences of Sofia). Since 1995 Dr. Betzel has been associated with the University of Hamburg, and in 2004 he was appointed Full Professor for Biochemistry and Molecular Biology, a position that still holds today.

Supervisor of over 30 PhD projects and 12 diplomas, BSc and MSc thesis, Dr. Betzel has received several honours and distinctions, such as Visiting Professor at Anna University Chennai, India and University of São Paulo, Brazil, as well as an award from the Universidade Estadual Paulista in Brazil, under the Visiting Professor Program. In 2016 and 2017, he was nominated as Distinguished Faculty Member under the Global Initiative.

Jimena D. Gorfinkiel

School of Physical Sciences, The Open University, Milton Keys, England
0000-0001-9264-3932

MORE INFO

"How to model Resonant States in Molecules and why it is important"

Jimena Gorfinkiel graduated in Chemistry at the Universidad Autónoma de Madrid in 1994, to which followed a M. Sc and Ph. D. in Theoretical Chemistry in the same university. She is currently Head of the Physics Research Discipline in the School of Physical Sciences at The Open University. Her current research interests focus on modelling molecular electronic processes initiated by electrons, positrons and photons involving the continuum using mainly R-matrix based approaches.

Jimena is also a member of the Commission on Atomic, Molecular, and Optical Physics (C15) of the International Union of Pure and Applied Physics and a Specialist Editor for Computer Physics Communications. She is also co-char the High-end Computing Consortium UK-AMOR.

Douglas Laurents

"Rocasolano" Institute for Physical Chemistry, Madrid, Spain
0000-0002-4187-165X

MORE INFO

"Characterization of Intrinsically Disordered Proteins Using Nuclear Magnetic Resonance Spectroscopy as a Via Towards Drug Development"

Douglas Vinson Laurents mastered theoretical and experimental aspects of protein stability, structure and folding under Profs. N. Pace (Texas A&M U.) and at Stanford U. with R. Baldwin and M. Levitt (2013 Chemistry Nobel Laureate). As a postdoc (1997-2000), with Prof. Manuel Rico and collaborators, he introduced 13C,15N isotopic labeleing and 3D NMR spectroscopy and applied these methodologies to study the stability, folding and structure of globular proteins. As Ramón y Cajal Fellow (2003-2006), he obtained an Alzheimer's Association grant to characterize by NMR the structure of toxic Abeta oligomers implicated in Alzheimer's disease. Established in 2006 as a tenured staff scientist at the IQFR, he elucidated the mechanism of oligomerization of RNase A via 3D domain swapping and the relationship between the protein simplicity and conformational specificity.

More recently, his research has focused on using NMR to characterize two proteins linked to vital neurological processes: 1) TDP-43, an essential human protein whose aberrant aggregation is tied to the fatal neurodegenerative diseases ALS & FTD and 2) CPEB, a protein which forms functional amyloid-like aggregates which are key or long term memory consolidation.

Gustavo García

Consejo Superior de Investigaciones Científicas, Madrid, Spain

MORE INFO

"Modelling radiobiological effects of secondary electrons and radicals in Radiotherapy"

Dr. Gustavo García graduated in Physics at the Complutense University, Madrid in 1978 and obtained the degree of Doctor of Philosophy, in the same university 9 years later, in 1987. Gustavo García currently works at the Institute of Fundamental Physics, Spanish National Research Council (CSIC), Madrid Spain, having work at the institute since 1987, with a small hiatus between 1990 and 1995.

Dr. García position is of Head of the "Atomic and Molecular Processes of Biomedical Interest" research group in CSIC, and their current project is 'Electron and Radical Induced Chemistry with Radiobiological Applications'. He is also an Appointed Professor of the Centre for Medical Radiation Physics, University of Wollongong, NSW Australia.

David Norman

College of Life Sciences, University of Dundee, Scotland
0000-0002-7658-7720

MORE INFO

"Pulsed EPR techniques for the investigation of biological structure"

After taking his BSc in Chemistry at UCW Aberystwyth, David Norman took a PhD at Kings College London working on aspects of modified oligonucleotide synthesis. Following his PhD, he spent several years as a postdoc at Queen Elizabeth College London and Courtauld Institute of Biochemistry. David began a collaboration with Dinshaw Patel, and both were interested in using NMR to explore the structure of DNA that had been modified by various carcinogens. In Columbia University New York, both became much more involved in NMR and developing methods to elucidate three dimensional structures from NMR data. Later, David applied the same techniques to small protein structures in Oxford University.

In 1992, David obtained an academic position at the University of Dundee both in the Biochemistry Dept and the Chemistry Dept., working in NMR, crystallography, FRET and finally EPR (almost exclusively). David actively participated in the developing of modern pulsed EPR techniques to the investigation of biological structure (mainly proteins) using EPR and spin labelling.

Paula da Fonseca

MRC Laboratory of Molecular Biology, Cambridge, England
0000-0001-8656-5747

MORE INFO

"Cryo-EM and its potential for the characterization of biomolecules"

Paula da Fonseca graduated in Biochemistry at the Faculdade de Ciências, Universidade de Lisboa, Portugal, and obtained her PhD in Biochemistry at the Imperial College London, UK. She held postdoctoral positions in London, at the Imperial College School of Medicine and at the Institute of Cancer Research, before moving to Cambridge, UK, to start her own research group at the MRC Laboratory of Molecular Biology. Since her PhD, Paula has been studying regulatory protein complexes primarily by electron microscopy-based methods.

Her current work focuses on studying the structure and function of eukaryotic proteasome complexes, with emphasis on fully understanding the different human variants. Additionally, she is investigating the use of high resolution cryo-EM in the development of new therapeutic drugs. Within this context, her cryo-EM work contributed to validate the Plasmodium proteasome as a potential target for antimalarials and the structural information provided is now being harnessed in the development of Plasmodium proteasome inhibitors with improved specificity and potency.

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PORTUGAL 2020
UNIÃO EUROPEIA Fundo Europeu de Desenvolvimento Regional
COMPETE 2020

Industry Life

Ana Pascoal

Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom

MORE INFO

"Where radiation physics meets Healthcare: day-to-day work of a hospital medical physicist "

Dr Ana Pascoal started her career in higher education lecturing medical imaging physics and radiation protection at graduate and post graduate level. She developed a master diploma in Clinical Engineering at Catholic University of Portugal and participated in multidisciplinary research in medical (imaging) physics. She trained as a clinical scientist in the National Health Service (England) and was technical assessor for the National Institute for Health and Care Excellence (NICE) in the Medical Technology Evaluation Programme.

Currently she is Principal Physicist and Medical Physics Expert at Guy's and St Thomas' NHS Foundation Trust (London). She lectures at King's College London, and collaborates in the training of clinical scientists and applicants to the Royal College of Radiology Fellowship programme. Dr Ana Pascoal has an academic background in Physics Engineering (Nova University of Lisbon) and holds a PhD in Radiological Sciences (University of London).

Ana Capacho

Champalimaud Centre for the Unknown, Lisbon, Portugal

MORE INFO

"Radiopharmaceuticals for clinical & research use – advantages & pitfalls"

Ana Sofia Capacho has a degree in Pharmaceutical Sciences at Faculdade de Farmácia da Universidade de Lisboa, to which followed a Master in Biomedical Inorganic Chemistry - Applications in Diagnostic and Therapeutics. Her professional training includes a Radiopharmacy Course; a pratical course in PET at Uniersidad de Navarra; Actualization in Statistics applied to Clinical Research Course and also a European Postgraduate Specialisation Certificate in Radiopharmacy, attributed by the Radiopharmacy Committee of the European Association Nuclear Medicine.

She began her professional carrer as a adjunt pharmacist, and later was appointed as Radiopharmacist at the Hospital Garcia de Orta (2001-2013). Since 2016 Ana Capacho is employed at the Radiopharmacy Unit,Nuclear Medicine-Radiopharmacology of the Champalimaud Foundation. Ana is also a member of the Portuguese Medicines Formulary workgroup (Portuguese Committee of Pharmacy and Therapeutics (INFARMED) and Author and co-author of several posters and oral communications presented at national and international scientific meetings (A.P.F.H.-FARMOZ Prize 2004 and 2010)

João Cruz

Closer Consulting, Lisbon, Portugal

MORE INFO

"The science of lines and balls"

João Cruz is the Co-Founder and Partner at Closer Consulting, VP at Data Science Portuguese Association and also Researcher at Center for Theoretical and Computacional Physics(CFTC), in Lisbon. João has majored in Physics Engineering and posteriorly enrolled on a PhD in Physics, both at the University of Lisbon. He is currently an Invited Prof. of Physics Models Applied to Economics and Finance at Faculty of Sciences of U. Lisbon.

After leaving college went from a state lab to the defense industry making whatever appeared until the day he got into an investment bank for developing computerized systems to handle financial instruments. After that, his life is mainly dealing with particles and planets that have names like Maria and Joao.

Ulf Håkanson

International Iberian Nanotechnolgy, Braga, Portugal

MORE INFO

"Key enabling technologies and creating value from the ideas"

Dr Ulf Hakanson is a Qualified European Patent Attorney working as Intellectual Property (IP) manager at the INL - International Iberian Nanotechnology Laboratory in Braga, focusing on IP strategy development and management of INL's patent portfolio. He also assists research teams with the identification, protection and exploitation of intellectual assets. Ulf has a long experience in IP both as a business unit manager and a patent attorney at a private IP consultancy firm.

Ulf holds a PhD degree in Solid State Physics from Lund University, Sweden and has more than 15 years of research experience in nanotechnology in the disciplines of material science and semiconductor physics, with main focus on nanotechnology, nano-optics, plasmonics, single molecule spectroscopy, photovoltaics, spectroscopic techniques utilizing electrons or light and scanning probe techniques. Ulf has authored or co-authored more than 30 articles in international peer-reviewed scientific journals and he has held numerous invited talks at international conferences, leading universities or research organizations worldwide.

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