SOCIEDAD MEXICANA DE LUZ SINCROTRÓN A.C.

GUANAJUATO, MÉXICO
JUNE, 21-26 **2020**

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1ST. NATIONAL CONGRESS
OF THE MEXICAN SOCIETY OF SYNCHROTRON LIGHT

1ST. INTERNATIONAL CONGRESS
SYNCHROTRON LIGHT TECHNIQUES

ONLINE

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Dra. Mayra Cuéllar Cruz - Universidad de Guanajuato (Chairman)
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UNIVERSIDAD DE GUANAJUATO

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SOCIEDAD MEXICANA DE LUZ SINCROTRÓN A.C.

SCIENTIFIC PROGRAM

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
09:00 - 09:30	**INAUGURATION**	**ABEL MORENO** "PROTEIN CRYSTALLOGRAPHY IN ACTION VIA X-RAY TECHNIQUES AT THE SYNCHROTRON FACILITIES"	**DRITAN SILIQI** "SMALL ANGLE X-RAY SCATTERING (SAXS) IN COMBINATION WITH OTHER TECHNIQUES, EXPERIMENTAL AND NON, TO DEAL WITH SOME TOUGH PROTEIN STRUCTURES"	**LUIS EDMUNDO FUENTES COBAS** "CRISTALOGRAFÍA SINCROTRÓNICA Y PROPIEDADES DE POLICRISTALES"	**ZEHRA SAYERS** "SYNCHROTRON LIGHT APPLICATIONS IN LIFE SCIENCES"	**JUAN RODRÍGUEZ CARVAJAL** "SYNCHROTRON AND NEUTRON DIFFRACTION FOR THE STUDY OF STRUCTURAL AND MAGNETIC FEATURES OF MULTIFERROIC MATERIALS"
09:30 - 10:00	**JOACHIM FRANK** 2017 NOBEL PRIZE IN CHEMISTRY "CRYO-EM: THE STRUCTURE AND DYNAMICS OF BIOMOLECULES IN THEIR NATIVE STATES					
10:00 - 10:30		**HITOSHI ABE** "XAFS AS A TOOL TO STUDY CHEMICAL STATES AND LOCAL STRUCTURES"	**VIVIAN STOJANOFF** ADVENTURES IN "THE LIGHT SOURCE LAND"	**GIULIANA AQUILANTI** "CHARACTERIZATION OF CATHODE MATERIALS USING X-RAY ABSORPTION SPECTROSCOPY AND X-RAY FLUORESCENCE AT ELETTRA-SINCROTRONE TRIESTE"	**GASTÓN GARCÍA LÓPEZ** "ION BEAMS AND SYNCHROTRON LIGHT IN PERSPECTIVE"	**JOSÉ JIMÉNEZ MIER Y TERÁN** "EN DEFENSA DE LOS RAYOS X BLANDOS: EL CASO DE RIXS"
10:30 - 11:00						
11:00 - 11:30	**BREAK**					
11:30 - 12:00	**MATÍAS MORENO YNTRIAGO** "SCIENCE IN MEXICO WITH AND WITHOUT A SYNCHROTRON LIGHTSOURCE"	**MARINE COTTE** "SYNCHROTRON LIGHT FOR THE MICRO-ANALYSIS OF ARTISTIC MATERIALS"	**DAVID WATERMAN** "MACROMOLECULAR CRYSTALLOGRAPHY DATA PROCESSING WITH DIALS"	**CATERINA BISCARI** "PRESENTE Y FUTURO DEL SINCROTRÓN ALBA EN ESPAÑA"	**KIRSI LORENTZ**	**MARÍA DEL JESÚS ROSALES HOZ** "ESTUDIOS DE CRISTALOGRAFÍA EN SINCROTRÓN: UNA FUENTE DE MARAVILLAS"
12:00 - 12:30						
12:30 - 13:00	**ALFONSO FRANCIOSI** "STATUS AND PERSPECTIVES OF ELETTRA AND FERMI"	**HIRAM CASTILLO MICHEL** "SHINING SYNCHROTRON LIGHT AT THE NANOSCALE: NANOMATERIALS IN THE BIOSPHERE"	**ANDREA LAUSI** "SESAME: AN OPPORTUNITY FOR SCIENCE AND GROWTH"	**DANIEL HERNÁNDEZ CRUZ** "TRENDS ON THE MICROSTRUCTURE AND PATHOLOGY OF CONCRETE RESEARCH WITH SYNCHROTRON RADIATION"	**LUIS GABRIEL BRIEBA DE CASTRO** "ENTENDIENDO LA REGULACIÓN ENZIMÁTICA Y LA EVOLUCIÓN DE TRIOSAFOSFATO ISOMERASAS DE PLANTAS"	**ELSPETH GARMAN** "THE FUTURE OF SYNCHROTRON DATA COLLECTION"
13:00 - 13:30						
13:30 - 14:30	**LUNCH**					
14:30 - 15:30	**COURSE 1:** ANÁLISIS DE MATERIALES NATURALES Y SINTÉTICOS POR MEDIO DE ABSORCIÓN Y DIFRACCIÓN	**COURSE 1:** ANÁLISIS DE MATERIALES NATURALES Y SINTÉTICOS POR MEDIO DE ABSORCIÓN Y DIFRACCIÓN	**POSTER SESSION**	**POSTER SESSION**	**ARMANDO ANTILLÓN** "ASPECTOS DE DISEÑO EN EL SINCROTRÓN MEXICANO"	**AWARD CEREMONY**
15:30 - 16:30	**WORKSHOP 1:** XAS	**WORKSHOP 1:** XAS				
16:30 - 16:45	**BREAK**					
16:45 - 18:45	**COURSE 1:** ANÁLISIS DE MATERIALES NATURALES Y SINTÉTICOS POR MEDIO DE ABSORCIÓN Y DIFRACCIÓN **WORKSHOP 1:** XAS	**COURSE 1:** ANÁLISIS DE MATERIALES NATURALES Y SINTÉTICOS POR MEDIO DE ABSORCIÓN Y DIFRACCIÓN **WORKSHOP 1:** XAS	**WORKSHOP 1:** XAS **WORKSHOP 2:** CCP4: SOFTWARE FOR MACROMOLECULAR X-RAY CRYSTALLOGRAPHY			

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KEYNOTE SPEECH

"CRYO-EM: THE STRUCTURE AND DYNAMICS OF BIOMOLECULES IN THEIR NATIVE STATES"

PROF. JOACHIM FRANK

2017 NOBEL PRIZE IN CHEMISTRY

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOPHYSICS
COLUMBIA UNIVERSITY, NEW YORK, NY 10032

The aim of Structural Biology is to explain life processes in terms of macromolecular interactions in the cell. These interactions typically involve more than two partners, and can run up to dozens. A full description will need to characterize all structures on the atomic level, and the way these structures change in the process. Because of the crowded environment of the cell, such characterization is presently only possible when the group of interacting molecules (often organized into processive "molecular machines") is isolated and studied in vitro. While X-ray crystallography has provided structures of a large number of molecular structures, the need for crystals diffracting to high resolution has severely limited the number of supramolecular assemblies and the range of conformers that can be studied with this technique. Single-particle cryo-electron microscopy is about to fill this gap, allowing functional processes to be studied in great detail without imposing restraints on the structures. There are many examples now for this expansion of Structural Biology toward a full characterization of a functional process. Future developments of single-particle cryo-EM include the study of short-lived intermediates in a nonequilibrium system by time-resolved techniques, and the characterization of continuous structural changes using data mining from large ensembles of molecule images.

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09:30 -11:00 H

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PLENARY LECTURE

"SCIENCE IN MEXICO WITH AND WITHOUT A SYNCHROTRON LIGHTSOURCE"

DR. MATÍAS MORENO YNTRIAGO

INSTITUTE OF PHYSICS
NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO

El Dr. Fernando Matías Moreno Yntriago obtuvo su Licenciatura, Maestría y Doctorado en Física por la Facultad de Ciencias de la UNAM. Es Profesor-Investigador de Tiempo Completo en el Instituto de Física de la UNAM desde 1985.

Ha realizado diversas estancias sabáticas en Centros Internacionales, como es el Centro Internacional de Física Teórica en Trieste, Italia y en la Universidad Católica de Louvain en Bélgica. Ha sido distinguido con la medalla de la División de Partículas y Campos que otorga la Sociedad Mexicana de Física. Realiza investigaciones en física de altas energías en aplicaciones de la radiación sincrotrónica.

JUNE, 21

11:30 – 12:30 H

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PLENARY LECTURE

"STATUS AND PERSPECTIVES OF ELETTRA AND FERMI"

DR. ALFONSO FRANCIOSI

CHIEF EXECUTIVE OFFICER
ELETTRA SINCROTRONE

Alfonso Franciosi, a national of Italy and of the U.S., is the current Chairman of the Board and CEO of Elettra Sincrotrone Trieste S.C.p.A. and a Professor of Physics with the University of Trieste. He is responsible for the operation of the 2.4 GeV, third-generation synchrotron radiation source Elettra and of the new free-electron laser source FERMI. He directs a staff of 400 scientists, engineers and support personnel, who conduct in-house research and assist over 2000 international users of synchrotron radiation per year. Such users have at their disposal 38 operating beamlines on the Elettra storage ring and on the FERMI free electron laser and several support laboratories. The publication list of professor Franciosi includes more than 300 articles in refereed international journals on the physics and materials science of semiconductors, semiconductor heterostructures, superlattices, quantum wells, metal/semiconductor contacts, thin film nucleation and growth, lasers and optical modulators, synchrotron radiation spectroscopies and microscopies. Professor Franciosi has been the advisor of more than 40 doctoral and master students in Italy and in the U.S. His former students are now employed by industrial concerns such as Intel, 3M, IBM, Xerox, Cypress Semiconductor Corporation, etc.

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PLENARY LECTURE

"PROTEIN CRYSTALLOGRAPHY IN ACTION VIA X-RAY TECHNIQUES AT THE SYNCHROTRON FACILITIES"

DR. ABEL MORENO

INSTITUTE OF CHEMISTRY
NATIONAL AUTONOMOUS UNIVERSITY OF MEXICO

Dr. Abel Moreno is a full Professor of Biological and Physical Chemistry at the Institute of Chemistry of the National Autonomous University of Mexico (UNAM) in Mexico City. He has been distinguished as a member of the National System of Researchers of Mexico (SNI) at level 3 (the highest category of Mexican scientists), a member of the Mexican Academy of Sciences, Mexican Society of Crystallography, Mexican Society of Synchrotron Light, the New York Academy of Sciences, and member of the Mexican and American Chemical Societies. Dr. Abel Moreno has published more than 108 papers in prestigious international journals cited 2300 times having a H-index of 25. He is the author of 15 book chapters and 7 books on his specialties in Biological Crystallogenesis, Crystallochemistry, and Biomineralization processes. Into the Academia he has graduated more than 30 students at all levels from BSc up to the PhDs and postdoctoral fellows. Prof. Moreno was the former President of the International Organization for the Biological Crystallization from September 2010 to September 2012 (IOBCr). Doctor Moreno is an expert in Protein Crystallization, Crystal Growth Methods, Crystallochemistry, Protein Crystallography, Biomineralization Processes and Structural Research using X-ray Diffraction, Scanning/Transmission Electron Microscopy, Atomic Force Microscopy and Synchrotron Radiation Techniques. His work as well as contributions have been applied to Biological Chemistry and Biomedical Sciences.

JUNE, 22
09:00 –10:00 H

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GUEST LECTURE

"XAFS AS A TOOL TO STUDY CHEMICAL STATES AND LOCAL STRUCTURES"

DR. HITOSHI ABE

INSTITUTE OF MATERIALS STRUCTURE SCIENCE
ACCELERATOR RESEARCH ORGANIZATION (KEK)

Hitoshi Abe was born in Tokyo, Japan in 1980. He initiated surface and ultrathin film magnetism studies in Prof. Toshiaki Ohta's group at the University of Tokyo. He received his master degree in Chemistry from the University of Tokyo in 2005. Under the supervision of Prof. Tetsuya Hasegwa, he received his doctoral degree (Science) from the University of Tokyo in March 2008. He had been a special research fellow of Japan Society for the Promotion of Science from April 2005 to March 2008. In April 2008, he started to work as a research associate at Department of Chemistry, Keio University. His research interests also include surface chemical reactions and development of surface chemistry and magnetism analysis methods with synchrotron x-ray radiation. In April 2010, he moved to Institute of Materials Structure Science, High Energy Accelerator Research Organization as associate professor.

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10:00 –11:00 H

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PLENARY LECTURE

"SYNCHROTRON LIGHT FOR THE MICRO-ANALYSIS OF ARTISTIC MATERIALS"

DR. MARINE COTTE

HEAD OF THE ID21 BEAMLINE
EUROPEAN SYNCHROTRON RADIATION FACILITY (ESRF)

Marine Cotte, researcher at the French National Centre of Scientific Research (CNRS), is currently seconded at the European Synchrotron Radiation Facility (ESRF) in Grenoble, France, where she develops new technologies to examine works of art and archaeological objects. Her research is of enormous value to society because it provides the basis for managing and protecting important examples of cultural heritage.

By working with museums, she joins the interests of science to those of society and links cultural heritage to advanced technology. Marine is a pioneering and dedicated researcher who herself took the first steps towards working with Dutch researchers. Receiving the Descartes-Huygens Prize will allow her to go to the Netherlands several times to work with researchers at Delft University of Technology, Eindhoven University of Technology, the Rijksmuseum in Amsterdam and other institutions. She will enter into new alliances with museum conservationists, curators, art historians and technical scientists.

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GUEST LECTURE

"SHINING SYNCHROTRON LIGHT AT THE NANOSCALE: NANOMATERIALS IN THE BIOSPHERE"

DR. HIRAM CASTILLO MICHEL

X-RAY MICROSPECTROSCOPY BEAMLINE ID21
ESRF-THE EUROPEAN SYNCHROTRON

PhD in Environmental Science and Engineering in 2011 from the University of Texas at El Paso, USA. His research interests focus on the use of synchrotron X-ray fluorescence (XRF) and X-ray Absorption spectroscopy (XAS) at the micro and nano scale to study the distribution and biochemical modifications of trace elements and nanomaterials in biological systems. In 2011, he arrived at ESRF beamline ID21 as post-doctoral researcher. He participated on the development and optimization of cryogenic sample preparation and analysis protocols for XRF and XAS micro-spectroscopy at ID21. He was the responsible scientist of the Infrared branch at ID21 (dismounted in 2017). Since 2013, he is scientist at ID21 (permanent since 2017) where he develops an in-house research program focusing on the characterization of nanomaterials in biological samples and their impact on the environment, particularly on agricultural systems. He is currently the project coordinator of the upgrade program of ID21 that will deliver a new end-station for XRF and XAS nano-analysis with optimized cryogenic environment compatible with biological samples. He has authored and co-authored 90 peer reviewed and 2 book chapters (h-index 26, 2660 citations google scholar). He has co-supervised 2 master thesis, 4 PhD students, and 2 post-doctoral fellows since 2013.

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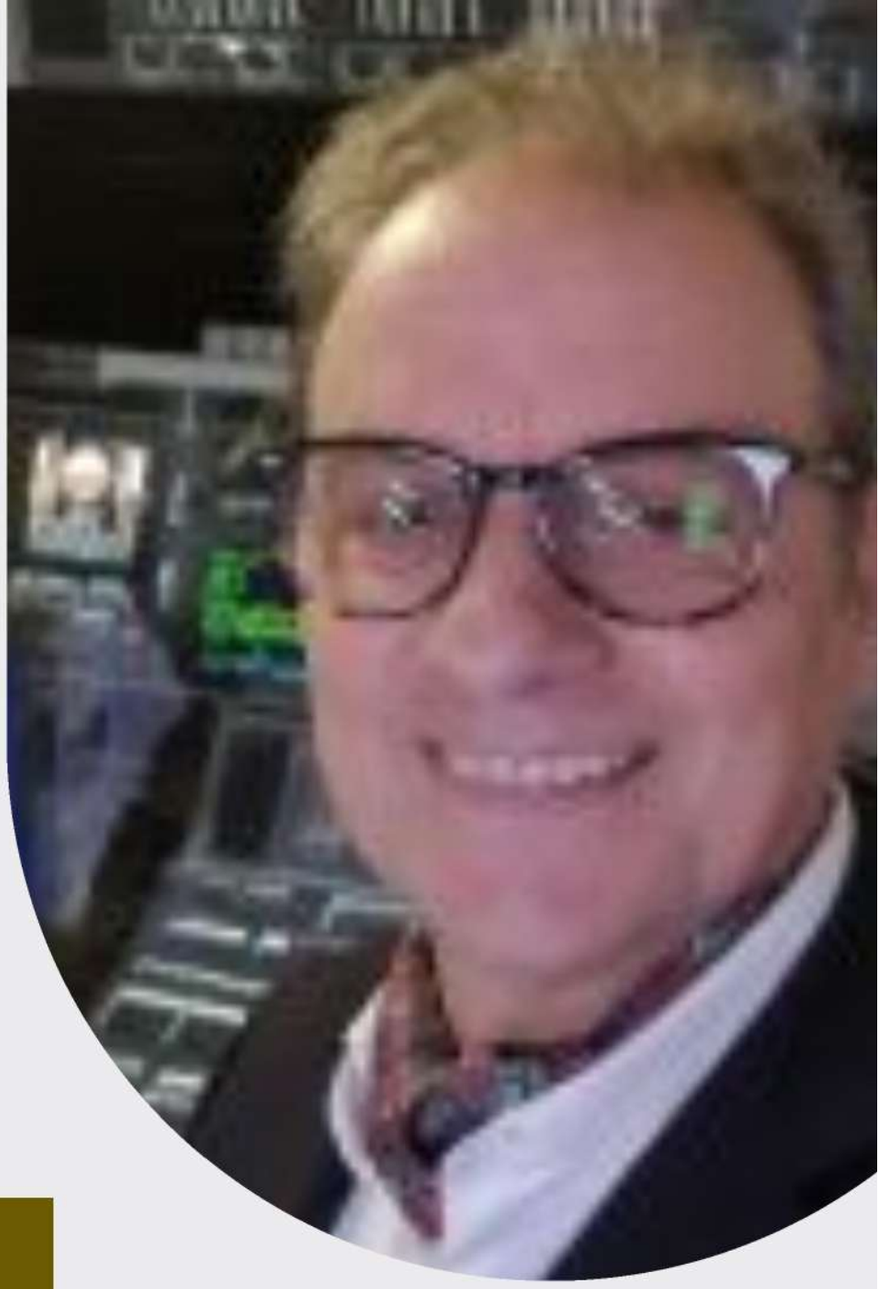
PLENARY LECTURE

"SMALL ANGLE X-RAY SCATTERING (SAXS) IN COMBINATION WITH OTHER TECHNIQUES, EXPERIMENTAL AND NON, TO DEAL WITH SOME TOUGH PROTEIN STRUCTURES"



DR. DRITAN SILIQI

INSTITUTE OF CRYSTALLOGRAPHY-CNR

Dritan, since 1992, works as a staff scientist at the IC-CNR, initially as close collaborator of Prof Carmelo Giacovazzo, a worldwide known crystallographer, spending a part of is carrier on developing of the phasing techniques to solve the macromolecules structure from X-ray and neutron diffraction data.

He is co-author of a software package for a global phasing for proteins: ILMILIONE [Burla et al., J. Appl. Cryst. (2007), 40, 609-613 with more than 600 citations]. Currently as the head of the Bio-crystallization Lab, Dritan is involved in several projects related to the studies, combining different techniques as macromolecular crystallography (MX), Small Angle X-ray Scattering (SAXS) devoted to structural insights of proteins involved in rare diseases (Shwachman Diamond Syndrome, cystic fibrosis), Intracellular Region of the Human Magnesium Transport Mediator CNNM4, Interdomain conformational flexibility of UGGT (the eukaryotic glycoprotein secretion checkpoint).

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PLENARY LECTURE

ADVENTURES IN " THE LIGHT SOURCE LAND"

DRA. VIVIAN STOJANOFF

BROOKHAVEN NATIONAL LABORATORY
NATIONAL SYNCHROTRON LIGHT SOURCE

Vivian Stojanoff works at the U.S. Department of Energy's Brookhaven National Laboratory. There, she uses x-rays at the National Synchrotron Light Source (NSLS) to study how atoms are arranged in protein crystals, because the arrangement affects how proteins function. For example, knowing the way atoms are arranged in the protein insulin has helped medical doctors provide better treatments for diabetes. Stojanoff was raised in Brazil, where she earned her bachelor's and master's degrees in physics and her Ph.D. in crystallography at the University of São Paulo. Before joining the NSLS as a physicist in 2001, Stojanoff held scientific staff positions at the Physics Institute of the University of São Paulo, Brookhaven Lab's Biology Department, and the European Synchrotron Radiation Facility. In addition to her research at Brookhaven, Stojanoff inspires up-and-coming women in STEM fields by heading the Brookhaven Women in Science (BWIS) organization at the Lab. Under Stojanoff's leadership, BWIS hosts seminars and lectures each month, some featuring renowned women scientists from around the world. BWIS also administers two scholarships to women pursuing degrees in STEM-related fields and provides frequent networking opportunities for members to support each other's efforts on the job and encourage each other's successes.

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GUEST LECTURE

"MACROMOLECULAR CRYSTALLOGRAPHY DATA PROCESSING WITH DIALS"

DR. DAVID WATERMAN

STFC RUTHERFORD APPLETON LABORATORY
SCIENTIFIC PROGRAMMER

Provides and supports an integrated suite of programs for determination of macromolecular structures by X-ray crystallography; aims to develop cutting edge approaches to experimental determination and analysis of protein structure; as a community based resource, supports the development and integration of novel software into the suite; serves the widest possible research community, embracing academic (not for profit) and for profit research.

Offers education and training of scientists in experimental structural biology and encourages the wide dissemination of new ideas, techniques and practice.

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PLENARY LECTURE

"SESAME: AN OPPORTUNITY FOR SCIENCE AND GROWTH"

DR. ANDREA LAUSI

SCIENTIFIC DIRECTOR
SESAME (SYNCHROTRON-LIGHT FOR EXPERIMENTAL SCIENCE AND APPLICATIONS IN THE MIDDLE EAST)

Andrea brings with him extensive experience in the science programme of synchrotron light facilities having worked at Elettra-Sincrotrone Trieste S.C.p.A. in Trieste (Italy) since 1996. His recent positions at the Italian Laboratory included Head of the XPRESS beamline for high pressure studies, a position he held until he joined SESAME, Head of Elettra's MCX Powder Diffraction beamline (2008-2015) and Head of the Laboratory's Powder Diffraction beamline (2002-2008). Since 2008 he has also been in charge of coordination between all the user beamlines and the machine group at Elettra.

Andrea also brings long-standing experience in science communication having been a member, since May 2013, of the Communication Task Force of Elettra, and the person responsible for the Elettra content at lightsources.org. Moreover, in April 2019 he was appointed Chair of the RICE (Research Infrastructure Communications and Engagement) working group of the ERF-AISBL (Association of European-Level Research Infrastructures Facilities). Andrea has carried out research in numerous areas and has been an invited teacher in several crystallography and instrumentation schools.

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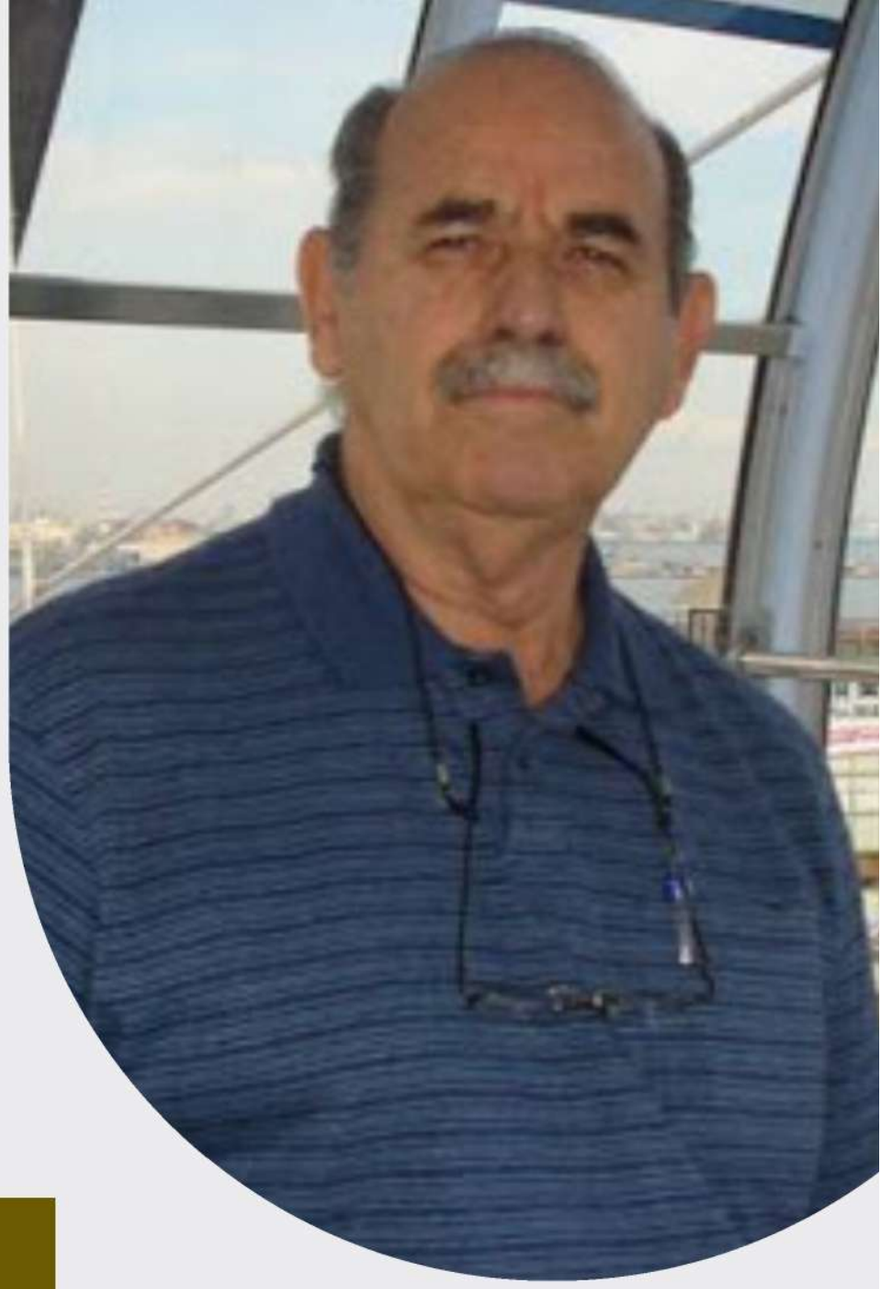
PLENARY LECTURE

"CRISTALOGRAFÍA SINCROTRÓNICA Y PROPIEDADES DE POLICRISTALES"



DR. LUIS EDMUNDO FUENTES COBAS

MATERIALS PHYSICS
ADVANCED MATERIALS RESEARCH CENTER

Luis E. Fuentes-Cobas obtained his bachelor's, master's, and doctorate in solid state physics from the University of Havana (UH, Cuba). He developed a post-doc on neutronographic texture analysis at the Joint Institute for Nuclear Research Dubna (Russia). The academic interest of Dr. Fuentes-Cobas has been focused on the teaching and research of electromagnetism, the structural analysis of materials by means of synchrotron light and the structure-properties relationship in functional solids.

His CIMAV Crystallography Group (mainly graduate students) has solved with synchrotron light the crystal structures of various piezoelectrics and multiferroics, created computer programs for the interpretation via modeling of two-dimensional diffractometric data and contributed novel algorithms for the prediction of the elasto-electro-magnetic properties of textured polycrystals.

Dr. Fuentes-Cobas is coordinator of the international project "Material Properties Open Database (MPOD)", associated with the open database http://mpod.cimav.edu.mx, and of the scientific education project "Materials World Modules-México". He is the author or co-author of 150 articles and 7 books, has directed 40 graduate theses. He has received scientific awards in Russia and in Cuba. In 2012 he received the Chihuahua State Prize for Science, Technology and Innovation.

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09:00 –10:00 H

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GUEST LECTURE

"CHARACTERIZATION OF CATHODE MATERIALS USING X-RAY ABSORPTION SPECTROSCOPY AND X- RAY FLUORESCENCE AT ELETTRA-SINCROTRONE TRIESTE"

DR. GIULIANA AQUILANTI

HEAD OF XAFS AND XRF BEAMLINES
ELETTRA – SINCROTRONE TRIESTE

Giuliana Aquilanti graduated in Physics at University ofCamerino (1998, 110/110 cum laude) and after obtained a Ph.D in Physics at the University Joseph Fourier (Grenoble, France). Since 2009 she is scientist at the XAFS beamline of Elettra and in 2011 she was appointed as head of the same beamline.The research carried out over the last 15 years concerns the development and application of x-ray techniques(mainly x-ray absorption spectroscopy)for the study of matter and was carried out at the European Synchrotron in Grenoble (ESRF) and at the Italian Synchrotron in Trieste (Elettra). Her research activity, documented by about 140 scientific publications (h-index 23 according to Scopus), is devoted to two main themes:a. Structural characterization of advanced materials for energy storageb. Structural characterization of matter under extreme pressure and temperature conditions. She is coordinatingthe scientific activity of the XAFSbeamline staff, as well as supervisingfellows within different programs of ICTP (TRIL, STEP), IAEA (OpenSesame) and IUCr (LAAMP).

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PLENARY LECTURE

"PRESENTE Y FUTURO DEL SINCROTRÓN ALBA EN ESPAÑA"

DR. CATERINA BISCARI

DIRECTOR OF ALBA SYNCHROTRON

La Dra. Caterina Biscari es una física, directora del Sincrotrón ALBA. Licenciada en Física por la Universidad Complutense de Madrid y Doctora en Física por la Universidad degli Studi di Napoli, ha desarrollado su carrera científica en el ámbito de los aceleradores de partículas en diversos laboratorios del mundo, como la Organización Europea para la Investigación Nuclear (CERN), el Laboratorio Nazionale de Frascati del INFN y el Centro Nacional de Hadronterapia Oncológica de Pavia, contribuyendo al desarrollo de aceleradores para investigación fundamental, investigación aplicada y aplicaciones médicas. Es EPS Fellow por sus contribuciones claves en el diseño, la construcción y la puesta en marcha de aceleradores. Desde 2012 es Directora del Laboratorio de Luz de Sincrotrón ALBA.

Miembro de comités asesores de proyectos en diversos países, entre otros el comité asesor de los aceleradores del CERN, de la Fuente Europea de Neutrones ESS, de la fuente de fotones Europea XFEL. En 2012 recibió la condecoración de Oficial de la Estrella de Italia.

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GUEST LECTURE

"TRENDS ON THE MICROSTRUCTURE AND PATHOLOGY OF CONCRETE RESEARCH WITH SYNCHROTRON RADIATION"

DR. DANIEL HERNÁNDEZ CRUZ

FACULTY OF ENGINEERING
AUTONOMOUS UNIVERSITY OF CHIAPAS

El Dr. Daniel Hernández Cruz es Profesor Tiempo Completo de la Facultad de Ingeniería de la Universidad Autónoma de Chiapas. Es Ingeniero Electrónico por Instituto Tecnológico de Tuxtla (ITTG). Obtuvo el grado
Maestro en Ciencias con la Especialidad en Óptica por el Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE). Es Doctor en Física por la Université Laval, de Quebec, Canadá, en el año 2004. Del año 2004 al 2007 realizó trabajos de investigación como Posdoctorante para McMaster University en Ontario, Canadá, estando de base en el Advanced Light Source del Lawrence Berkeley National Laboratory, en California, Estados
Unidos. Entre los años 2007 y 2008 realizó, como posdoctorante, trabajos de investigación con el grupo de Nanociencias y Nanotecnología en el Instituto Potosino de Investigación Científica y Tecnológica (IPICYT). Del 2008 al 2009 se incorporó a la Facultad de Ingeniería de la UNACH para realizar investigaciones bajo el programa de retención de CONACyT. Entre el 2012 y 2013 realizó una estancia de investigación como profesor invitado del Prof. Paulo Monteiro, del Departamento de Ing. Civil y Ambiental de la Universidad de California en Berkeley, EEUU, utilizando técnicas basadas en Luz de Radiación Sincrotrón, para el estudio de materiales cementosos.

JUNE, 24
12:30 –13:30 H

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1ST. NATIONAL CONGRESS OF THE MEXICAN SOCIETY OF SYNCHROTRON LIGHT

1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

PLENARY LECTURE

"SYNCHROTRON LIGHT APPLICATIONS IN LIFE SCIENCES"

PROF. DR. ZEHRA SAYERS

FACULTY OF ENGINEERING AND NATURAL SCIENCES
SABANCI UNIVESITY

Dr. Zehra Sayers is a molecular biophysicist researching mainly on synchrotron X-ray structure analysis of biological macromolecules. She holds a BSc in Physics (Bogazici University, Istanbul) and a PhD in Biophysics (University of London). She was a post-doc in the UK and Sweden and was a staff scientist at European Molecular Biology Laboratory (EMBL)Hamburg Outstation (1986-1998) before joining Sabanci University in Istanbul as a founding faculty member. Here she was the Director of Foundation Development Program (2010-2019) and served as the interim President in 2018.

Currently she is on a sabbatical at the EMBL Outstation in Hamburg. Dr. Sayers has been the Chair of the Scientific Advisory Committee of the international synchrotron radiation facility project SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) from its early stages until 2018. Her contributions to the realization of this project have been internationally recognized with the Rammal Award in 2017 and AAAS Science Diplomacy Award in 2019. She is also an honorary member of the Science Academy of Turkey.

JUNE, 25
09:00 –10:00 H

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1ST. NATIONAL CONGRESS OF THE MEXICAN SOCIETY OF SYNCHROTRON LIGHT

1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

GUEST LECTURE

"ION BEAMS AND SYNCHROTRON LIGHT IN PERSPECTIVE"

DR. GASTÓN GARCÍA LÓPEZ

DIRECTOR CENTRO DE MICRO-ANÁLISIS DE MATERIALES
UNIVERSIDAD AUTÓNOMA DE MADRID

Gastón García López, director del Centro de Microanálisis de Materiales (CMAM), es licenciado en Ciencias Físicas y en Matemáticas por la UAM y diplomado en Derecho por la Universidad de Valladolid. En el año 2000 se doctoró en Física con la calificación de sobresaliente cum laude. Durante los últimos 13 años ha estado ligado al sincrotrón ALBA (Barcelona), ocupando el cargo de subdirector desde 2013 hasta 2019, periodo en el que fue responsable de proyectos estratégicos. De 2000 a 2006 estuvo ligado al CMAM de la UAM, donde fue coordinador del equipo técnico y vicedirector. Con una amplia experiencia en gestión de infraestructuras de investigación, dirección y coordinación de equipos multidisciplinares y planificación estratégica, Gastón García representa a España como asesor en el Consejo del ESRF (European Synchrotron Radiation Facility) y es presidente del comité de coordinación de LEAPS, red que une a todos los sincrotrones y láseres de electrones libres europeos. Inició su carrera investigadora en el campo de Física de Altas Energías, para dedicarse posteriormente a la Ciencia de materiales aplicando técnicas basadas en aceleradores de partículas, con especial énfasis en el daño de materiales inducido por irradiación. Durante los últimos años ha realizado numerosas actividades de divulgación científica.

JUNE, 25
10:00 –11:00 H

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1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

GUEST LECTURE

"PENDING TITLE"

DR. KIRSI LORENTZ

ASSISTANT PROFESSOR
THE CYPRUS INSTITUTE

Kirsi received her PhD from University of Cambridge (Trinity College) in 2004, with focus on human bioarchaeology. Prior to joining the Cyprus Institute (CyI) and its Science and Technology in Archaeology and Culture Research Center (STARC) in 2008, Kirsi was the Director of the Wolfson Bioarchaeology Laboratory and tenured Faculty at Newcastle University. At CyI she served as the Chair of the Faculty Council of the Science and Technology in Archaeology and Culture Research Center. She was the Scientific Coordinator of the EU FP7 project STACHEM (Science and Technology for Archaeology and Cultural Heritage in the Eastern Mediterranean). Kirsi's current research focuses on synchrotron radiation enabled bioarchaeology, as well as other scientific and technological means to approach key questions about the human past through archaeological human tissues, ranging from bone and teeth to hair and skin remains. She currently leads analyses of human remains from the wider Eastern Mediterranean and Middle East (EMME) region and beyond, including Cyprus, Iraq, Syria, Turkey, Iran, and Egypt. Her particular research interests include heavy metal exposure in the past through focus on microstructures of ancient human tissues, using synchrotron radiation techniques. Kirsi currently supervises five PhD students, engaging them in regular beamtimes at synchrotron radiation facilities at ESRF, SESAME, and PSI (Swiss Light Source). Kirsi led the first official user group at the newly opened SESAME synchrotron, including two of her PhD students.

JUNE, 25
11:30 –12:30 H

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1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

GUEST LECTURE

"ENTENDIENDO LA REGULACIÓN ENZIMÁTICA Y LA EVOLUCIÓN DE TRIOSAFOSFATO ISOMERASAS DE PLANTAS"

DR. LUIS GABRIEL BRIEBA DE CASTRO

LABORATORIO NACIONAL DE GENÓMICA
CINVESTAV- IRAPUATO

Ingeniero bioquímico del ITESM-Campus Guaymas y doctor en ciencias por el Centro de ciencias médicas de la Universidad de Texas-San Antonio, auspiciado por una beca Fulbright-García Robles. Estudios postdoctorales en Harvard Medical School becado por la fundación Pew. Líder del grupo de Bioquímica Estructural del Langebio-Cinvestav. Ha recibido honores como la beca de la fundación Howard Hughes, alumno distinguido de la Universidad de Texas y el nombramiento de investigador nivel 3 del Sistema Nacional de Investigadores. Su investigación se fundamenta en la premisa que una estructura vale más que mil palabras. Este paradigma ha sido utilizado en su laboratorio para entender como funcionan los sistemas de replicación mitocondrial en plantas, y diversas enzimas como triosafosfato isomeras, DNA polimerasas y DNA glicosilasas y especialmente para modificar proteínas de manera racional. Cuenta con más de 70 artículos en Pubmed y su ha formado a 12 estudiantes de doctorado y 20 de maestría.

JUNE, 25
12:30 –13:30 H

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I CONGRESO NACIONAL DE LA SOCIEDAD MEXICANA DE LUZ SINCROTRÓN

I CONGRESO INTERNACIONAL DE TÉCNICAS DE LUZ SINCROTRÓN

21-26 JUNIO 2021

GUEST LECTURE

"ASPECTOS DE DISEÑO EN EL SINCROTRÓN MEXICANO"

DR. ARMANDO ANTILLÓN DÍAZ

INSTITUTO DE CIENCIAS FÍSICAS
UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO

Hizo su doctorado en física matemítica en la UNAM. Posteriormente hizo un posdoctorado en Brookhaven National Laboratory donde tuvo la oportunidad de trabajar en física de aceleradores en el AGS y en el proyecto del Relativistic Heavy Ion Collider.

Regresó a la Universidad de Guanajuato para participar en la creación de su Instituto de Física y en el programa de posgrado correspondiente. Ya en el ICF, se unió en 2007 al grupo nacional que proponía la creación de una fuente de luz sincrotrón en México y desde entonces ha estado ligado a este proyecto participando principalmente en su diseño.

Ha colaborado con grupos de biofísica y de física atómica del ICF en el desarrollo de un compuesto farmacológico derivado de la anfotericina B y en modelos de propiedades de membranas lipídicas, así como en experimentos de espectroscopía atómica en líneas de radiación sincrotrín.

JUNE, 25

14:30 – 15:30 H

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1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

PLENARY LECTURE

"SYNCHROTRON AND NEUTRON DIFFRACTION FOR THE STUDY OF STRUCTURAL AND MAGNETIC FEATURES OF MULTIFERROIC

DR. JUAN RODRÍGUEZ CARVAJAL

INSTITUT LAUE-LANGEVIN

Juan Rodriguez-Carvajal (JCR) has been involved in large scale projects for developing new neutron sources, in particular the European Spallation Source (ESS). He was the Coordinator for the Structural Science and Solid State Chemistry group of the Scientific Case of the ESS project (1995-1996); he was member of the Instrumentation Task Group of the ESS (2000-2002) and member of Scientific Advisory Committee of the ESS (2009-2012). JRC has participated in many committees and selection panels for research projects in large scale facilities, in particular at ISIS (U.K.), PSI (Switzerland) and SNS (USA). JRC has, and has had, also a strong activity in training young researchers through many courses on diffraction and crystallography organized by universities and research institutions in many places of the world.

During the major part of his career JRC has been interested in the following fields:

1. Data analysis and software development in Crystallography and Diffraction Physics.
2. Theoretical analysis of magnetic Structures. Frustration and low dimensional magnetism.
3. Physics of Transition Metal-Rare Earth and Superconducting oxides and intermetallics.

JUNE, 26
09:00 –10:00 H

1ST. NATIONAL CONGRESS OF THE MEXICAN SOCIETY OF SYNCHROTRON LIGHT

1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

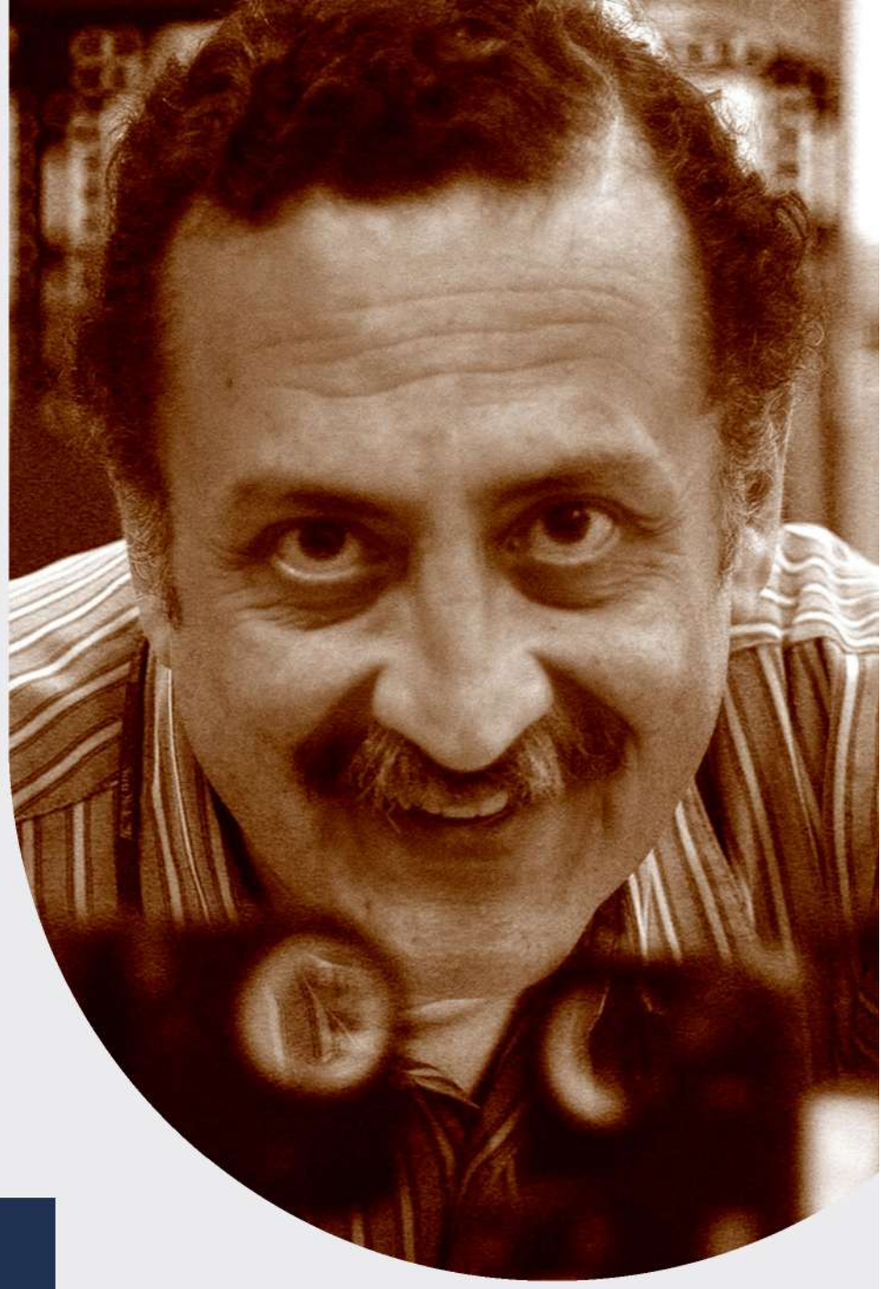
GUEST LECTURE

"EN DEFENSA DE LOS RAYOS X BLANDOS: EL CASO DE RIXS"

DR. JOSÉ IGNACIO JIMÉNEZ MIER Y TERÁN

INVESTIGADOR TITULAR C
INSTITUTO DE CIENCIAS NUCLEARES DE LA UNAM

El Dr. José I. Jiménez Mier y Terán estudió la licenciatura en física en la Facultad de Ciencias de la UNAM. Obtuvo la maestría y el doctorado en el Departamento de Física de la Universidad de Yale. Realizó una estancia posdoctoral en el Oak Ridge National Laboratory. Es investigador del ICN en la UNAM desde 1987. También desde 1987 ha impartido clases en el Departamento de Física de la Facultad de Ciencias de la UNAM. Es Investigador Nacional nivel III. Ha impartido más de 60 cursos de licenciatura y posgrado, la mayoría en la UNAM, pero también en la UAM Iztapalapa y en el Departamento de Física de la Universidad de Tulane. Ha dirigido tres tesis de doctorado, cuatro más de maestría y nueve de licenciatura. Ha sido investigador invitado en el National Bureau of Standards en Gaithersburg, en la Universidad Central de Florida, en el Synchrotron Radiation Center en Wisconsin, en el Advanced Light Source en Berkeley y en los departamentos de física de las Univerdidades de Tulane y Estatal de New York en Stony Brook. Tiene 52 artículos de investigación en revistas, 17 trabajos publicados en memorias de congreso, un capítulo en libro de investigación, dos artículos en revistas de enseñanza, tres reportes internos y 31 artículos de divulgación. Sus trabajos de investigación han recibido unas 760 citas. También cuenta con notas completas (350 páginas) del curso de Física Atómica y Materia Condensada que imparte regularmente en la Facultad de Ciencias de la UNAM



JUNE, 26
10:00 –11:00 H

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1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

GUEST LECTURE

"ESTUDIOS DE CRISTALOGRAFÍA EN SINCROTRÓN: UNA FUENTE DE MARAVILLAS"

DR. MARÍA DEL JESÚS ROSALES HOZ

DEPARTAMENTO DE QUÍMICA
CINVESTAV

MARÍA DEL JESÚS ROSALES ESTUDIÓ LA LICENCIATURA EN QUÍMICA EN LA FACULTAD DE QUÍMICA DE LA UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO EN DONDE OBTUVO TAMBIÉN EL GRADO DE MAESTRÍA EN QUÍMICA INORGÁNICA. DESPUÉS DE OBTENER EL GRADO DE MAESTRÍA, VIAJÓ A INGLATERRA PARA CURSAR ESTUDIOS DE DOCTORADO EN LA UNIVERSIDAD DE CAMBRIDGE BAJO LA DIRECCIÓN DEL PROF. JACK LEWIS Y DEL DR. BRIAN F. G. JOHNSON. SU TEMA DE INVESTIGACIÓN SE CENTRÓ EN LA QUÍMICA DE CÚMULOS METÁLICOS CARBONÍLICOS. TAMBIÉN INICIÓ ESTUDIOS EN LA TÉCNICA DE DIFRACCIÓN DE RAYOS X DE MONOCRISTAL. DESPUÉS DE OBTENER EL DOCTORADO, REGRESÓ A MÉXICO Y SE INCORPORÓ A LA PLANTA E INVESTIGADORES DEL INSTITUTO DE QUÍMICA DE LA UNAM. EN EL CINVESTAV, HA FUNGIDO COMO COORDINADORA ACADÉMICA DEL PROGRAMA DE DOCTORADO EN CIENCIAS QUÍMICAS (8 AÑOS Y COMO JEFA DEL DEPARTAMENTO DE QUÍMICA (4 AÑOS). A LO LARGO DE SU CARRERA HA TENIDO LA OPORTUNIDAD DE IMPARTIR CURSOS EN NIVELES DE BACHILLERATO, LICENCIATURA, MAESTRÍA Y DOCTORADO Y TAMBIÉN DE DIRIGIR TESIS DE LICENCIATURA. MAESTRÍA Y DOCTORADO. HA TENIDO LA FORTUNA DE TENER EXCELENTES ESTUDIANTES CON LOS QUE HA PODIDO PUBLICAR ARTÍCULOS EN REVISTA INDIZADAS. SU PRODUCTIVIDAD LE PERMITIÓ CONVERTIRSE EN INVESTIGADORA NACIONAL NIVEL III EN EL SISTEMA NACIONAL DE INVESTIGADORES.

JUNE, 26
11:30 –12:30 H

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1ST. NATIONAL CONGRESS OF THE MEXICAN SOCIETY OF SYNCHROTRON LIGHT

1ST. INTERNATIONAL CONGRESS SYNCHROTRON LIGHT TECHNIQUES

JUNE 21-26, 2021

PLENARY LECTURE

"THE FUTURE OF SYNCHROTRON DATA COLLECTIONE"

PROF. ELSPETH GARMAN

DEPARTMENT OF BIOCHEMISTRY
UNIVERSITY OF OXFORD

Elspeth graduated with a D.Phil (Ph.D.) in nuclear physics from Oxford University in 1980 and switched to Biochemistry only later in her career, in 1987, when she joined the research staff at the Laboratory of Molecular Biophysics in Oxford. Since 1999 she has been faculty at the Biochemistry Department at Oxford University, where she holds a position as Professor of Molecular Biophysics and has also served as Director of the Systems Biology Programme at the Doctoral Training Centre. At Brasenose College she is a Nicholas Kurti Senior Research Fellow in Macromolecular Crystallography and until recently was Tutor for Graduates there. Elspeth's research on cryo-cooling and radiation damage has had a profound impact on crystallography. Armed with a rigorous approach inherited from her physics background and her natural inventiveness, she optimized cryogenic tools and cooling parameters, introducing a methodical approach to cryo-cooling that greatly improved diffraction data. Since radiation damage emerged as a serious problem in crystallographic structure calculation in 2000, she has spearheaded the studies dedicated to the issue, introducing mitigating measures such as the use of small molecules as radical scavengers. She experimentally determined the maximum x-ray dose that can be delivered to a macromolecule before compromising its structure—a parameter that is now called "the Garman" limit—and presented a method to predict the lifetime of proteins exposed to certain radiation doses. She also pioneered the use of an online UV-visible spectrometer to detect the early signs of radiation damage. Besides these studies, she developed the proton induced x-ray emission (PIXE) technique, which allows precise identification of trace metal elements within a protein structure, and she determined the structure of many proteins involved in infectious diseases.

JUNE, 26
12:30 -13:30 H

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COURSE I

ANALYSIS OF NATURAL AND SYNTHETIC MATERIALS BY MEANS OF ABSORPTION AND DIFFRACTION

DRA. MARÍA ELENA MONTERO CABRERA

ENVIRONMENT AND ENERGY ADVANCED MATERIALS

MARÍA ELENA MONTERO CABRERA HAS WORKED SINCE 1998 AT THE ADVANCED MATERIALS RESEARCH CENTER (CIMAV), IN CHIHUAHUA, IN THE DEPARTMENT OF ENVIRONMENT AND ENERGY. SHE IS CURRENTLY CONDUCTING RESEARCH ON ENVIRONMENTAL RADIOACTIVITY AND APPLICATIONS OF SYNCHROTRON RADIATION IN THE STUDY OF ADVANCED AND ENVIRONMENTAL MATERIALS.

SHE IS THE LEADER OF THE ENVIRONMENTAL RADIOLOGICAL SURVEILLANCE LABORATORY IN CIMAV. SHE HAS BEEN ADVISOR OF 15 UNDERGRADUATE, 31 MASTER AND 15 DOCTORAL THESES. SHE IS THE AUTHOR OF MORE THAN 80 ARTICLES IN INTERNATIONAL JOURNALS.

SHE WAS PRESIDENT OF THE CUBAN PHYSICAL SOCIETY FROM 1994 TO 1999.

DR. LUIS EDMUNDO FUENTES COBAS

MATERIALS PHYSICS ADVANCED MATERIALS

THE ACADEMIC INTEREST OF DR. FUENTES-COBAS HAS BEEN FOCUSED ON THE TEACHING AND RESEARCH OF ELECTROMAGNETISM, THE STRUCTURAL ANALYSIS OF MATERIALS BY MEANS OF SYNCHROTRON LIGHT AND THE STRUCTURE-PROPERTIES RELATIONSHIP IN FUNCTIONAL SOLIDS.

HIS CIMAV CRYSTALLOGRAPHY GROUP (MAINLY GRADUATE STUDENTS) HAS SOLVED WITH SYNCHROTRON LIGHT THE CRYSTAL STRUCTURES OF VARIOUS PIEZOELECTRICS AND MULTIFERROICS, CREATED COMPUTER PROGRAMS FOR THE INTERPRETATION VIA MODELING OF TWO-DIMENSIONAL DIFFRACTOMETRIC DATA AND CONTRIBUTED NOVEL ALGORITHMS FOR THE PREDICTION OF THE ELASTO-ELECTRO-MAGNETIC PROPERTIES OF TEXTURED POLYCRYSTALS.

JUNE 21–22

WWW.SMLS.MX

WORKSHOP
XAS

DR. GUSTAVO CRUZ JIMÉNEZ

PROFESSOR
UNIVERSITY OF GUANAJUATO

DR. GUSTAVO CRUZ JIMÉNEZ STUDIES POSSIBLE NATIVE PLANTS IN THE STATE OF GUANAJUATO FOR THEIR POSSIBLE USE IN THE MANAGEMENT AND CONTROL OF CONTAMINANTS (PHYTOREMEDIATION). IN ADDITION, HE CONDUCTS CHEMICAL SPECIATION STUDIES OF POTENTIALLY TOXIC ELEMENTS USING SYNCHROTRON RADIATION TECHNIQUES, MAINLY X-RAY ABSORPTION SPECTROSCOPY.

HE IS A PROFESSOR RECOGNIZED BY THE SECRETARIAT OF EDUCATION AS A PROFESSOR WITH A DESIRABLE PRODEP PROFILE WITH "PREFERRED" QUALITY AND HE IS A MEMBER OF THE NATIONAL SYSTEM OF RESEARCHERS (SNI), LEVEL I. HE HAS PUBLISHED ABOVE TWENTY RESEARCH PAPERS ON INTERNATIONAL PEER REVIEW JOURNALS. IN ADDITION, HE HAS DIRECTED FOUR PHD THESES, FIVE MASTER'S DEGREE THESES AND ABOVE TWENTY UNDERGRADUATE THESES.

DR. RENÉ LOREDO PORTALES

INSTITUTE OF GEOLOGY
NATIONAL AUTONOMOUS

DR. LOREDO IS MEMBER OF THE NATIONAL SYSTEM OF RESEARCHERS LEVEL 1, AND IS TUTOR OF THE CHEMISTRY AND BIOLOGY MASTER DEGREES' PROGRAMS AT THE UNAM AND THE BIOCHEMISTRY MASTER DEGREE AT THE UASLP. DR. LOREDO, DEVELOP RESEARCH IN THE BIOGEOCHEMICAL DYNAMICS OF POTENTIALLY TOXIC ELEMENTS IN POLLUTED SITES AND THE CHEMICAL SPECIATION AND ATOMIC AND MOLECULAR CHARACTERIZATION OF METAL(LOID)S IN ENVIRONMENTAL, SYNTHETIC, GEOLOGIC AND CULTURAL HERITAGE MATERIALS. IN THE AREA OF SYNCHROTRON RADIATION, HE HAS DONE 5 RESEARCH STAYS AND MORE THAN 17 EXPERIMENTS IN LIGHT SOURCES SUCH AS THE ELETTRA SINCROTRONE TRIESTE, ADVANCED LIGHT SOURCE, EUROPEAN SYNCHROTRON RADIATION FACILITY AND SYNCHROTRON-LIGHT FOR EXPERIMENTAL SCIENCE AND APPLICATIONS IN THE MIDDLE EAST.

JUNE 21–23

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