LACP3

2021

7th Latin-American Congress of Photocatalysis, Photochemistry and Photobiology

ENGINEERING INSTITUTE, UNAM
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CONTENT

WELCOMING REMARKS

La celebración del 7°. Congreso Latinoamericano de Fotocatálisis, Fotoquímica y Fotobiología (7th LACP3) es un logro importante por los retos que se han tenido que vencer para su organización y realización vía remota, por la pandemia asociada a la COVID-19. Los trabajos recibidos para este Congreso son importantes contribuciones con grandes avances en estas tres áreas de investigación, en particular en fotocatálisis. Sin embargo, se requiere que se realicen mayores investigaciones y desarrollos en estas áreas, con el fin de poder alcanzar dos de los 17 Objetivos de Desarrollo Sostenible (ODS): los números 9 (Agua, Industria, Innovación e Infraestructura) y el 13 (Acción por el Clima). Objetivos que fueron adoptados el 25 de septiembre de 2015, por los líderes de diferentes países que eran miembros de la Organización de las Naciones Unidas en esa época, para erradicar la pobreza, proteger el planeta y asegurar la prosperidad para todos, como parte de una nueva agenda para lograr el Desarrollo Sostenible.

A lo largo de tres días, en el 7th LACP3 se presentarán trabajos de gran calidad de dos continentes y de más de 10 países. Las contribuciones de estos trabajos se enfocan principalmente a mejorar las características de catalizadores y reactores utilizados en procesos asistidos con luz, en particular, en la fotocatálisis. Estas mejoras pueden hacer factible la implementación de estos procesos a escala industrial. Esto es muy importante debido a que, hasta el momento, estas tecnologías han mostrado una gran eficiencia para la transformación de contaminantes emergentes tóxicos, en moléculas inocuas y pueden alcanzar su mineralización a sales, agua y dióxido de carbono.

Les doy la más cordial bienvenida al 7th LACP3 y espero que la próxima edición de este congreso que se realizará en Canadá, se pueda realizar con gran éxito de manera presencial.

The celebration of the 7th Latin American Congress of Photocatalysis, Photochemistry and Photobiology (7th LACP3) is an important achievement due to the challenges that have had to be overcome for its organization and realization remotely, due to the pandemic associated with COVID-19. The papers received for this Congress are important contributions with great advances in these three areas of research, in particular in photocatalysis. However, further research and development is required in these areas, in order to achieve two of the 17 Sustainable Development Goals (SDGs): numbers 9 (Water, Industry, Innovation and Infrastructure) and 13 (Climate Action). Goals that were adopted on September 25th, 2015, by the leaders of different countries that were members of the United Nations Organization at that time, to eradicate poverty, protect the planet and ensure prosperity for all, as part of a new agenda to achieve the Sustainable Development.

Over three days, high-quality works from two continents and more than 10 countries will be presented in the 7th LACP3. The contributions of these works focus mainly on improving the characteristics of catalysts and reactors used in light-assisted processes, in particular, in photocatalysis. These improvements can make it feasible to implement these processes on an industrial scale. This is very important because, so far, these technologies have shown great efficiency for the transformation of toxic emerging pollutants into harmless molecules and they reach their mineralization to salts, water and carbon dioxide.

I give you the warmest welcome to the 7th LACP3 and I hope that the next edition of this congress to be held in Canada, can be held with great success face-to-face.

Dr. Rosa María Ramírez Zamora
Chairwoman/II-UNAM

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Faculty of Engineering University of Porto

SPECIAL GUESTS

DRA. ROSAURA RUIZ GUTIÉRREZ

Secretary of Education, Science, Technology and Innovation of Mexico City, SECTEI • Special Guest – Opening ceremony

Rosaura Ruiz Gutiérrez es Licenciada en Biología y Maestra y Doctora en Ciencias Biológicas por la Facultad de Ciencias de la Universidad Nacional Autónoma de México (UNAM). Desarrolló su estancia posdoctoral en la Universidad de California con el Dr. Francisco J. Ayala. Ha sido profesora invitada en dicha Universidad y en la Universidad del País Vasco, así como colaboradora del Departamento de Historia de la Ciencia del Consejo Superior de Investigaciones Científicas (CSIC), España. Es fundadora y miembro de la junta directiva de la Red Internacional de Historia de la Biología y la Evolución (RIHBE), junto con investigadores destacados de la Universidad Michoacana de San Nicolás de Hidalgo (México), el CSIC (España), del Museo de Astronomía y Ciencias Afines (Brasil), la Universidad Andrés Bello (Chile), la Pontificia Universidad Católica del Ecuador, el Consejo Nacional de Investigaciones Científicas y Técnicas (Argentina) y la Universidad de Salamanca (España).

La Dra. Ruiz es integrante del Sistema Nacional de Investigadores y de la Academia Mexicana de Ciencias, de la que también fue la primera mujer Presidenta. En la UNAM ha ocupado diversos cargos administrativos: ha sido Directora General de Posgrado, Secretaria de Desarrollo Institucional, Directora de la Facultad de Ciencias, Coordinadora de Proyectos Académicos Especiales de la Secretaría General y, actualmente, además de continuar su labor docente como Profesora de Carrera de la Facultad de Ciencias, es integrante de la Junta de Gobierno en la misma Universidad.
Por su labor académica y compromiso con la educación y la difusión científicas ha obtenido diversos reconocimientos entre los que sobresalen: el Premio "José Antonio Alzate" al mejor artículo de difusión (2004); el Premio "Alfonso Robinson Bours en Educación Médica" (2005), otorgado por la Fundación Mexicana para la Salud A. C.; la Medalla de Oro al Talento de las Mujeres Mexicanas FICMAYA 2017, y el Premio anual del Municipio de Quito en la categoría de Ciencias Sociales por el contenido del libro Evolucionismo en América y Europa: Antropología, Biología, Política y Educación (2017).

Rosaura Ruiz Gutiérrez, has a degree in Biology and a Master and PhD in Biological Sciences from the Faculty of Sciences of the National Autonomous University of Mexico (UNAM). She developed her postdoctoral stay at the University of California with Dr. Francisco J. Ayala. She has been visiting professor at said University and at the University of the Basque Country, as well as a collaborator of the Department of History of the Spanish National Research Council (CSIC), Spain. She is the founder and member of the board of directors of the International Network for the History of Biology and Evolution (RIHBE), together with leading researchers from the Michoacan University of San Nicolás de Hidalgo (Mexico), the CSIC (Spain), the Museum of Astronomy and Related Sciences (Brazil), the Andrés Bello University (Chile), the Pontifical Catholic University of Ecuador, the National Scientific and Technical Research Council (Argentina) and the University of Salamanca (Spain).

Dr. Ruiz is a member of the National System of Researchers and the Mexican Academy of Sciences, of which she was also the first female President. At UNAM she has held various administrative positions: she has been General Director of Postgraduate Studies, Secretary of Institutional Development, Director of the Faculty of Sciences, Coordinator of Special Academic Projects of the General Secretariat and, currently, in addition to continuing her teaching work as Professor of Major of the Faculty of Sciences, is a member of the Governing Board at the same University.
For her academic work and commitment to scientific education and dissemination, she has obtained various awards, among which the following stand out: the "José Antonio Alzate" Award for the best dissemination article (2004); the "Alfonso Robinson Bours Award in Medical Education" (2005), awarded by the Mexican Foundation for Health A. C .; the Gold Medal for Talent of Mexican Women FICMAYA 2017, and the Annual Prize of the Municipality of Quito in the category of Social Sciences for the content of the book Evolutionism in America and Europe: Anthropology, Biology, Politics and Education (2017).

DR. RAFAEL BERNARDO CARMONA PAREDES

General coordinator of the Water System of Mexico City, SACMEX

Special Guest – Closing ceremony

Doctor en Ingeniería Mecánica por la UNAM. Investigador del instituto de Ingeniería de la misma universidad. Durante más de 35 años ha aplicado sus conocimientos a al Ingeniería Hidráulica con contribuciones para el diseño, construcción y operación de plantas de bombeo, así como para la solución de problemas de resonancia en sistemas hidroeléctricos.

De 2003 a 2015, fue colaborador en la Comisión Nacional del Agua, teniendo a su cargo la planeación, diseño y construcción de obras tan importantes como el Túnel Emisor Oriente y las plantas de bombeo La Caldera, Casa Colorada Profunda y El Caracol.
En el 2000, realizó una estancia como Profesor Invitado en la Universidad de Cranfield, Inglaterra, donde trabajó en el tema de Confiabilidad en Sistemas de Ingeniería y Gestión de Riesgo. Desde 1979, es profesor en la Facultad de Ingeniería de la UNAM, ha dirigido 38 tesis y publicado decenas de artículos en informes de investigación.
En 1995, la Academia de la Investigación Científica le otorgó el "Premio en Investigación Tecnológica"; en 1993 se hizo acreedor a la Distinción Universidad Nacional para Académicos en el área de Innovación Tecnológica y Diseño Industrial, que otorga la UNAM.

Doctor in Mechanical Engineering from UNAM. Researcher at the Institute of Engineering of the same university. For more than 35 years he has applied his knowledge to Hydraulic Engineering with contributions to the design, construction and operation of pumping plants, as well as to the solution of resonance problems in hydroelectric systems.

From 2003 to 2015, he was a collaborator in the National Water Commission, being in charge of the planning, design and construction of such important works as the Tunel Emisor Oriente and the La Caldera, Casa Colorada Profunda and El Caracol pumping plants.
In 2000, he made a stay as Visiting Professor at the University of Cranfield, England, where he worked on the topic of Reliability in Engineering Systems and Risk Management. Since 1979, he has been a professor at the Faculty of Engineering of the UNAM, has directed 38 theses and published dozens of articles in research reports.
In 1995, the Academy of Scientific Research awarded him the "Prize in Technological Research"; In 1993 he was awarded the National University Distinction for Academics in the area of Technological Innovation and Industrial Design, awarded by UNAM.

PLENARY SPEAKERS

DR. LUIGI RIZZO

Department of Civil Engineering, University of Salerno (Italy)

WATER AND WASTEWATER TREATMENT BY PHOTOCATALYSIS: HOMOGENEOUS VS. HETEROGENEOUS PROCESSES

Luigi Rizzo is Associate Professor in Sanitary and Environmental Engineering at the Department of Civil Engineering, University of Salerno (Italy). He is the coordinator of the "International PhD School on Advanced Oxidation processes" and he was the leader of Working Group 4 in COST Action ES1403 (NEREUS)". He is an external expert of the European Commission "Scientific Committee on Health, Environmental and Emerging Risks (SCHEER)" and he was (03/2013 – 03/2016) member of the European Commission Scientific Committee SCENIHR. He is editor of "Water Science and Technology" and "Water Supply" journals (IWA) and guest editor for several indexed journals. From 2007 to 2014, he was visiting professor in the context of the Erasmus program in 6 European Universities; moreover, he was (09/2008-02/2009) visiting scientist at Plataforma Solar de Almeria (Spain) and (07/2005 and 11/2004-12/2004) at "Water Chemistry Laboratory", University of Wisconsin Madison (USA).

He was/is coordinator, principal investigator, and investigator in 16 (3 ongoing) local/national and 15 (2 ongoing) international research projects. He supervised 3 post-docs (1 visiting scientist), 14 PhD students (8 visiting), 55 MSc students (10 visiting in the framework of Erasmus or other mobility programs).

His main research interest is water/wastewater treatment by advanced oxidation processes and, in particular tertiary treatment of urban wastewater for controlling the release of contaminants of emerging concern as well as the spread of antibiotic resistance into the environment, characterized by a strong interdisciplinary approach.

He published 139 papers, 97 in indexed journals (6352 citations and 40 h-index in SCOPUS). He was ranked 100th (out of 66925) for the category Environmental Science of the "Top 100.000 scientists (2019)" rank, finalized by Ioannidis et al., 2020 (PLoS Biol 18(10):e3000918), according to the SCOPUS database.

PROF. MARTA I. LITTER

CONICET - UNSAM

REMOVAL OF HEAVY METALS AND ARSENIC FROM WATER BY TIO2-HETEROGENEOUS PHOTOCATALYSIS

Prof. Dr. Litter is Doctor in Chemistry from the Buenos Aires University, Argentina (1974) with Postdoctoral stage at the University of Arizona, USA (1983). She is Senior Researcher of the Research Council (CONICET) and Full Professor at the University of General San Martín, Argentina. She was Principal Researcher at the National Atomic Commission until her retirement where she was Head of the Environmental Chemistry Remediation Division. Her research focuses on treatment of organic and inorganic contaminants in water and air by innovative advanced technologies, especially heterogeneous photocatalysis and use of nanomaterials.

She authored more than 200 scientific publications in international journals, books and chapters of books. She received the Mercosur Prize twice in 2006 and 2011. She was President of the Local Organizing Committee of the 5th International Congress on Arsenic in the Environment (As2014), Buenos Aires, Argentina, from 11 to 16 May 2014. She was designated pioneer on photocatalysis in Argentina (2016), Member of the Third World Academy of Sciences (TWAS, 2019 and Member of the Latin American Academy of Sciences (2020).

DR. SUMAN L. JAIN

CSIR-Indian Institute of Petroleum, Mohkampur

UNVEILING POTENTIAL OF THE HYBRID MATERIALS IN PHOTOCATALYTIC ACTIVATION AND CONVERSION OF CO_2 TO CHEMICALS

Dr. Suman L. Jain obtained her MSc. from the University of Rajasthan, Jaipur in 1998 with first class first and received gold medal. After completion of the Ph. D from CSIR-Indian Institute of Petroleum, Dehradun in 2004, she moved to Germany for postdoc as an Av-Humboldt Fellow in the University of Regensburg with Prof. Oliver Resier. In 2011 she got a permanent position as Senior Scientist in Chemical Sciences Division at CSIR-Indian Institute of Petroleum, Dehradun. Presently she is working as a principal scientist and heading the Synthetic Chemistry and Petrochemicals area of the Institute.

She has received many awards like INSA-Young Scientist Medal-2005, NASI-Platinum Jubilee Young Scientist Award-2007, CSI-Young Scientist Award-2010, CRSI-medal-2013, MRSI-award-2019 SERB-Women Excellence Award, and founder member of INYAS. She is also served as an Associate Editor of the New Journal of Chemistry, RSC (UK).

She has published more than 240 research publications in SCI- journals of Chemistry and 7 book chapters. Also, she has 21 patents (6 granted in the US and 4 in India) in her credit.

DR. JOSÉ ANTONIO SÁNCHEZ PÉREZ

University of Almeria

DESIGN AND OPERATION OF RACEWAY POND REACTORS FOR TERTIARY TREATMENT OF WASTEWATER USING SOLAR PHOTO-FENTON

Full Professor at the Department of Chemical Engineering, University of Almería. He has been involved in 24 national and international R&D projects and has leaded 12 of them, as well as in 12 research contracts with private companies. He has supervised 19 PhD thesis in different fields such as biotechnology of microalgae, filamentous fungi fermentation and water treatment and is co-author of four patents and more than 170 scientific publications in international journals.

He is the director of the Solar Energy Research Center, CIESOL, joint center between the University of Almería and the Plataforma Solar de Almería-CIEMAT, and director of the University Chair "Aqualia del ciclo integral del agua".

DR. VÍTOR JORGE PAIS VILAR

Faculty of Engineering University of Porto

NOVEL REACTORS FOR OZONATION, PHOTOCHEMICAL, PHOTOCATALYTIC AND PHOTOELECTROCALYTIC PROCESSES: TOWARDS PROCESS INTENSIFICATION

He is principal researcher in the Laboratory of Separation and Reaction Engineering-Laboratory of Catalysis and Materials (LSRE-LCM), Faculty of Engineering of the University of Porto (FEUP), Porto, Portugal. He earned his BSc (2001) and PhD (2006) in Chemical Engineering from FEUP. From 2016-2020 he served as Associate Editor of Environmental Science and Pollution Research Journal (Springer). He is currently Associate Editor of Journal of Environmental Chemical Engineering (Elsevier) and member of the editorial board of Journal of Hazardous Materials Advances (Elsevier) and Environmental Science and Pollution Research (Springer). He is member of the Environmental Biotechnology Division of the European Federation of Biotechnology, member of the scientific committee of the International Ph.D. School on AOPs and coordinator of the Iberoamerican Conference on Advanced Oxidation Technologies (CIPOA).

He has expertise on environmental assessment and monitoring of surface waters, environmental remediation technologies (biological oxidation, adsorption/biosorption, ion-exchange, advanced oxidation processes, electrochemical advanced oxidation processes, ozonation and membrane filtration), wastewater resources recovery and process integration & intensification. He also provides advisory services to public institutions and environmental & water industry. He has more than 500 scientific publications, including 227 ISI papers (h-index of 46, >7500 citations) and 2 patents. He is included in a list of the most cited scientists in world released by Stanford University.

DR. ERICK R. BANDALA

Desert Research Institute

PHOTOCATALYTIC PROCESSES FOR WATER TREATMENT, FROM BULK- TO NANO-MATERIALS: ARE BIOGENIC PHOTOCATALYSTS THE NEXT STEP?

Assistant Research Professor for Advanced Water Technologies at Desert Research Institute. Dr. Bandala holds a Ph.D. in Engineering; MSc in Organic Chemistry, and BEng in Chemical Engineering. His research interests in Environmental Engineering include A) The Water-Energy-Food NEXUS; B) Water Security; C) International Water, Sanitation and Hygiene (IWASH); D) Advanced oxidation processes (AOPs) for environmental restoration; E) Synthesis, characterization and application of nanomaterials for environmental restoration; G) Development of Climate Change adaptation methodologies for water security.

Dr. Bandala is author or co-author of 107 peer-reviewed papers in international journals (2020 average impact factor 4.6, >3,470 citations, h-index 29); 6 books, 30 book chapters and 65 works published in proceedings of international conferences. Dr. Bandala is Chief Editor: Water in Air, Soil and Water Research, and Associate Editor, Frontiers in Environmental Science.

PRE-CONGRESS SCHOOL / WORKSHOP

Friday (October 22nd) 10-14 h

DR. JESÚS ÁNGEL ARENAS ALATORRE

UNAM Institute of Physics

SCOPE AND LIMITATIONS OF ANALYTICAL ELECTRON MICROSCOPY

Dr. Jesús Arenas is currently a Titular B researcher at the UNAM Institute of Physics, he is a member of the National System of Researchers, Level III. He was president of the Asociación Mexicana de Microscopía A.C. in the 2009-2010 biennium.

He has had research stays in the microscopy laboratory at Argonne National Laboratory. He was also a researcher at the National Institute for Nuclear Research (1995-2003). His lines of research are the study of the crystalline structure of nanomaterials with catalytic and magnetic properties, as well as biomaterials, he is the author of 65 articles in indexed journals which have been cited more than 2700 times. He has directed 18 graduate and undergraduate theses.

Monday (October 25th) 10-14 h

DR. LUIS ALEJANDRO DÍAZ FLORES

UNAM, Faculty of Chemistry

METHODOLOGICAL AND EXPERIMENTAL CRITERIA FOR THE DETERMINATION OF ORGANIC POLLUTANTS OF ENVIRONMENTAL INTEREST, USING MINIATURIZED SAMPLE PREPARATION TECHNIQUES AND ITS ANALYSIS BY GAS CHROMATOGRAPHY

Dr. Luis Alejandro Díaz Flores completed his bachelor's, master's and doctoral degrees (2004-2018) in the analytical chemistry department of the Faculty of Chemistry, UNAM. During this time, he specialized in the development and optimization of analytical methods using miniaturized sample preparation techniques, followed by chromatographic analysis (gases and liquids). The potential applications of these developments include solid, liquid and gaseous samples in food, pharmaceutical and environmental samples.

Dr. Díaz Flores has experience in the use of sample preparation techniques such as: solid phase extraction (SPE), solid phase microextraction (SPME), stir bar sorptive extraction (SBSE), dispersive liquid-liquid microextraction (DLLME) and hollow fiber-liquid phase microextraction (HF-LPME).

He is currently a subject professor at the Faculty of Chemistry, where he teaches Instrumental Analytical Chemistry. Likewise, he is a member of the academic-scientific panel that participates in the norm for the regulation of volatile organic compounds (VOCs) in Mexico City, where the National Chamber of the Cosmetic Products Industry (CANIPEC) and the Mexican Institute of Aerosol (IMAAC) also participate.

Dr. Díaz Flores is responsible of the research and development area in a propellant gas company, where he develops new analytical alternatives for the characterization of organic pollutants in gas samples.

ORAL SESSION

Tuesday (October 26th)

10:00	**WELCOMING REMARKS** Dr. Rosa María Ramírez Zamora (Chairwoman of the 7th LACP3/II-UNAM) Dr. Rosaura Ruiz Gutiérrez (Secretary of Education, Science, Technology and Innovation of Mexico City, SECTEI) Dr. Alma Concepción Chávez Mejía (Co-Chairwoman of the 7th LACP3/II-UNAM)
11:00	PLENARY LECTURE **WATER AND WASTEWATER TREATMENT BY PHOTOCATALYSIS: HOMOGENEOUS VS. HETEROGENEOUS PROCESSES** Dr. Luigi Rizzo (University of Salerno, Italy)
12:00	B03 **SOLAR PHOTODEGRADATION OF ACETAMINOPHEN BY UIO-66 BASED METAL ORGANIC FRAMEWORKS** Yilan Wang
12:20	B19 **PHOTOCATALYTIC REMOVAL OF PARABENS USING NH_2-UIO-66(Zr): EFFECT OF WATER MATRIX AND RADIATION SOURCE** Manuel Peñas-Garzón, María J. Sampaio, Yilan Wang, Jorge Bedia, Juan J. Rodríguez, Carolina Belver, Claudia G. Silva, Joaquim L. Faria
12:40	**COFFEE BREAK**
13:00	B01 **INFLUENCE OF MIXTURE OF CRYSTALLINE PHASES OF TiO_2 IN THE PHOTOCATALYTIC DEGRADATION OF 4-CHLOROPHENOL AND PHENOL** Israel Rangel-Vázquez, G. del Ángel, L. Huerta, F. González E. Ramos-Ramírez, J. D. Becerra-Ruiz, Elisa Pimentel Martínez.
13:20	B08 **USE OF RADIATION COLLECTORS IN THE TREATMENT OF WATER CONTAMINATED WITH DYES BY HETEROGENEOUS PHOTOCATALYSIS** Fidel Granda-Ramírez, Melissa Barrera, Sara Castrillón, Lady Rueda, Gina Hincapié Mejía
13:40	SPONSOR TALK **FTIR AND RAMAN MOLECULAR SPECTROSCOPY OPTIONS FOR PHOTOCHEMISTRY** Luciana Pataro (ISASA Instrumentación)
14:00	**LUNCH BREAK**
15:30	PLENARY LECTURE **REMOVAL OF HEAVY METALS AND ARSENIC FROM WATER BY TIO_2-HETEROGENEOUS PHOTOCATALYSIS** Dr. Marta I. Litter (CONICET - UNSAM)
16:30	B11 **EVALUATION OF UV-BASED PROCESSES IN A HELICAL FLOW PHOTOREACTOR FOR THE DEGRADATION OF A CONTAMINANT OF EMERGING CONCERN** Gina Hincapié-Mejía, Gustavo A. Peñuela
16:50	A01 **PHOTOELECTROCHEMICAL NITRATE CONVERSION ON COPPER – NICKEL OXIDES NANOSTRUCTURED FOAMS** Andrés F. Quintana-Rondón, Ingrid N. Sequeda-P., Ángel M. Meléndez
17:10	A03 **MICROSTRUCTURE OF $Bi_4Ti_3O_{12}$ BY SOL-GEL FOR THE TETRACYCLINE PHOTODEGRADATION** Agileo Hernández-Gordillo, Vasti Z. Martínez, Sandra Rodil
17:30	E10 **POTENTIAL LOCATION OF THE PHOTOACTIVATED PERSULFATE PROCESS FOR THE DEGRADATION OF CIPROFLOXACIN IN A LARGE WASTEWATER TREATMENT PLANT** José Alberto Macías Vargas, Rosa María Ramírez Zamora

ORAL SESSION

Wednesday (October 27th)

09:00	PLENARY LECTURE **UNVEILING POTENTIAL OF THE HYBRID MATERIALS IN PHOTOCATALYTIC ACTIVATION AND CONVERSION OF CO_2 TO CHEMICALS** Dr. Suman L. Jain (CSIR-Indian Institute of Petroleum, Mohkampur)
10:00	F02 **NANO-SCALE Au ISLANDS SUPPORTED ON ZNO-TiO_2 HETEROJUNCTION AND THEIR IMPACT IN THE PHOTOCATALYTIC HYDROGEN PRODUCTION** David Ramírez-Ortega, Diana Guerrero-Araque, Prospero Acevedo-Peña, Hector A. Calderón, Rodolfo Zanella
10:20	F06 **PRODUCTION OF SHORT-CHAIN HYDROCARBONS FROM CO_2 BY PHOTOCATALYSIS USING TiO_2 ANATASE-BROOKITE WITH REDUCED GRAPHENE OXIDE COMPOSITES** J. Daniel Becerra-Ruiz; Israel Rangel-Vázquez; Gloria Alicia Del Ángel-Montes
10:40	B20 **HETEROGENEOUS PHOTOCATALYTIC DEGRADATION OF METOPROLOL IN WATER BY USING NANOESTRUCTURES TiO_2** Sandra Ortiz Gómez, Petia Mijaylova Nacheva, Cecilia Cuevas Arteaga
11:00	B24 **TUNING THE BANDGAP OF M-DOPED TITANATE NANOTUBES (M = Fe, Co, Ni, AND Cu) FOR CO_2 PHOTOREDUCTION** Melissa Méndez-Galván, Christian A. Celaya, Oscar Andrés Jaramillo-Quintero, Jesús Muñiz, Gabriela Díaz, Hugo A. Lara-García
11:20	B05 **EFFECT OF THE IMPLEMENTATION OF STATIC MIXERS IN A CPC TYPE SOLAR REACTOR FOR THE PHOTOCATALYTIC DEGRADATION OF PARACETAMOL** M. Díaz Jiménez, R. Sanjuán Galindo, C. Aba Guevara, A. Alonzo García, D.S. Olivo Alanís, N.A. Ramos Delgado
11:40	**COFFEE BREAK**
12:00	PLENARY LECTURE **DESIGN AND OPERATION OF RACEWAY POND REACTORS FOR TERTIARY TREATMENT OF WASTEWATER USING SOLAR PHOTO-FENTON** Dr. José Antonio Sánchez Pérez (University of Almeria)
13:00	SPONSOR TALK **TEM APPLICATIONS ON CATALYST MATERIALS** Rafael Villaurrutia Arenas (Nanociencias de México)
13:20	E03 **ACACIA DEALBATA POLLEN POWDER BIO-ADSORPTION COMBINED WITH UV-A/NTA/PHOTO-FENTON PROCESS FOR ACID RED 88 DEGRADATION** Nuno Jorge
13:40	E02 **TREATMENT OF REAL TEXTILE INDUSTRIAL WASTEWATER BY THE HETEROGENEOUS SOLAR PHOTO-FENTON PROCESS USING COPPER SLAG** Lilia-Margarita Herrera-Ibarra, Rosa-María Ramírez-Zamora, Alejandra Martín-Domínguez, Martín Piña-Soberanis
14:00	**LUNCH BREAK**
15:30	E19 **SYNERGISTIC EFFECTS AFTER SEQUENTIAL DISINFECTION FOR DIFFERENT MICROORGANISMS IN SECONDARY EFFLUENT** Raphael Corrêa Medeiros, Kamila Jessie Samarro Silva, Luis Antonio Daniel, Maria Teresa Hoffmann, Lyda Patrícia Sabogal-Paz, Mariza de Camargo, Patrícia Rodrigues Fortes

ORAL SESSION

Wednesday (October 27th)

15:50	E07 **DEGRADATION OF COMPOUNDS OF EMERGING CONCERN USING THE BiOX/LED (VISIBLE LIGHT) PHOTOCATALYSTS** Damian Tuba-Guaman, Poojesh Bertram-Mohammadi, Jochen Meier–Haack, Michael Zuarez-Chamba, Miguel Quishpe, Jan Spengler, Miguel Herrera–Robledo, Pablo A. Cisneros–Pérez
16:10	B23 **SYNTHESIS OF Ni/GO-TiO_2 COMPOSITES FOR THE PHOTOCATALYTIC REDUCTION OF CO_2 TO METHANOL** Oscar Quiroz-Cardoso, Víctor M. Suárez, Socorro Oros-Ruiz, Mildred Quintana, Sandra Ramírez-Rave, Ricardo Gómez.
16:30	D22 **PHOTOCATALYTIC REDUCTION OF Cr(VI) INDUCED BY UV/VIS RADIATION USING ZnO/CuO CATALYSTS** J. Soto-Hernández, E. Samaniego-Benítez, E. Flores Rojas and A. Mantilla
16:50	E12 **DEGRADATION OF THIABENDAZOLE AND ITS TRANSFORMATION PRODUCTS BY TWO PHOTO-ASSISTED IRON-BASED PROCESSES IN A RACEWAY POND REACTOR** Portilla-San Gabriel, Melisa; Martínez-Piernas, Ana Belén; Agüera, Ana; Arzate, Sandra; Sánchez-Pérez, José Antonio; Ramírez-Zamora, Rosa-María
17:10	D06 **INTERMEDIATE REOXIDATIVE SPECIES IN α/B-PINENE SELECTIVE PHOTO-EPOXIDATION CATALYZED BY A DIOXOMOLYBDENUM (VI) BASED METAL ORGANIC FRAMEWORK** Nelson J. Castellanosa, Henry Martínez Q., Fernando Martínez O.

ORAL SESSION

Thursday (October 28th)

10:00	PLENARY LECTURE **NOVEL REACTORS FOR OZONATION, PHOTOCHEMICAL, PHOTOCATALYTIC AND PHOTOELECTROCALYTIC PROCESSES: TOWARDS PROCESS INTENSIFICATION** Dr. Vítor Jorge Pais Vilar (Faculty of Engineering University of Porto)
11:00	E01 **DEGRADATION OF CHLORINATED AND HYDROXYLATED INTERMEDIATES IN UV/ClO_2 SYSTEMS: A CHLORINE-BASED ADVANCED OXIDATION PROCESS INVESTIGATION** Daniele Scheres Firak, Luca Farkas, Máté Náfrádi, Tünde Alapi
11:20	E06 **EFFECT OF IRON SOURCE ON CONTINUOUS FLOW SOLAR PHOTO-FENTON FOR THE REMOVAL OF SULFAMETHOXAZOLE AS A SURROGATE OF CONTAMINANT OF EMERGING CONCERN** Soriano-Molina, P., Gualda-Alonso, E., De la Obra, I., Miralles-Cuevas, S., Casas López, J.L., Sánchez Pérez, J.A.
11:40	E05 **ASSESSMENT OF SOLAR PHOTO-FENTON MEDIATED BY Fe^{3+}-NTA FOR SIMULTANEOUS DISINFECTION AND REMOVAL OF CONTAMINANTS OF EMERGING CONCERN IN RACEWAY POND REACTORS** Gualda-Alonso, E., Miralles-Cuevas, S., Soriano-Molina, P., De la Obra, I., Casas López, J.L., Sánchez Pérez, J.A.
12:00	**CLOSING CEREMONY** Dr. Rosa María Ramírez Zamora (Chairwoman of the 7th LACP3/II-UNAM) Dr. Rafael Carmona Paredes (General coordinator of the Water System of Mexico City, SACMEX) Dr. Alma Concepción Chávez Mejía (Co-Chairwoman of the 7th LACP3/II-UNAM)
13:00	E14 **SOLAR PHOTOCATALYTIC ASSESSMENT OF MICROWAVE PREPARED NH_2-MIL125 FOR THE REMOVAL OF PHARMACEUTICALS IN WATER** Rafael R. Solís, Carolina Belver, Juan J. Rodriguez, Jorge Bedia
13:20	E22 **VISIBLE-LIGHT PHOTOCATALYTIC DEGRADATION OF POLYSTYRENE NANOPLASTICS WITH IMMOBILIZED CuxO OBTAINED BY ANODIZATION** Jawer David Acuña-Bedoya, Edith Luévano-Hipólito, Erika Iveth Cedillo-González, Laura Patricia Domínguez-Jaimes, Alonso Martínez Hurtadod, Juan Manuel Hernández-López
13:40	B16 **THEORETICAL-EXPERIMENTAL SIMULATION OF RADIATION ABSORTION FOR THE DESIGN OF A HYBRID PHOTOCATALYTIC REACTOR** Sayra Orozco, M. Gabriela Téllez-Arias, Michel Rivero, Raúl Suárez-Parra, Camilo A. Arancibia-Bulnes
14:00	**LUNCH BREAK**
15:30	PLENARY LECTURE **PHOTOCATALYTIC PROCESSES FOR WATER TREATMENT, FROM BULK- TO NANO-MATERIALS: ARE BIOGENIC PHOTOCATALYSTS THE NEXT STEP?** Dr. Erick R. Bandala (Desert Research Institute)
16:10	SPONSOR TALK **CRYOTUNE FOR NEW POSSIBILITIES IN CO_2 SORPTION STUDIES** Marcela Espinoza Almeraya (Anyover Instrumentación Científica)
16:30	D05 **SELECTIVE PHOTOOXIDATION OF VALENCENE WITH DIOXO-Mo(VI)/TiO_2 AND O_2: EFFECT OF SUPPORT MORPHOLOGY** Jane Neira, Henry Martínez, Édgar Páez Mozo, Fernando Martínez Ortega
16:50	D20 **OBTAINING Zn Y Nb PHOTOCATALIZERS DOPPED WITH SEMICONDUCTORS PHOTOACTIVES (SMCFA) TO REMOVE MALACHITE GREEN IN PRESENCE OF UV-C RADIATION** Lozano, Maria; Chico, Michelle; Barbosa, Aida Liliana.

ORAL SESSION

Thursday (October 28th)

17:10	D17 **SYNTHESIS AND CHARACTERIZATION OF ZnO AND ITS APPLICATION IN PHOTOCATALYSIS** Tatiana Rodríguez Flores, Catalina Haro-Pérez, Raúl Suárez Parra, Isaías Hernández Pérez
17:30	D18 **AMINOTHIAZOLE LIGAND-TYPE DIOXO-Mo(VI) COMPLEX FOR SELECTIVE MONOTERPENES OXIDATION WITH LIGHT AND O_2** Henry Martínez Q., Edgar A. Páez-Mozo, Fernando Martínez O.

POSTER SESSION

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B04	**DEGRADATION OF METHYL ORANGE BY HETEROGENEOUS AND HOMOGENEOUS PHOTOCATALYSIS IN A CPC-TYPE SOLAR REACTOR** D. González Pereyra, L.M. González Rodríguez, M. Villanueva-Rodríguez, C. Aba Guevara, R. Sanjuan Galindo, N.A. Ramos Delgado.
B12	**DESIGN OF A HIGH-PRESSURE PHOTOREACTOR FOR THE SELECTIVE OXIDATION OF A-PINENE** E. Pájaro, J.R. Martínez, V.G. Baldovino-Medrano, F. Martínez O.
B13	**ECOTOXICITY OF TIO_2 NANOPARTICLES SYNTHESIZED BY PRECIPITATION USED IN THE PHOTOCATALYTIC REMOVAL OF ORGANOARSENIC COMPOUNDS** Diana Delgado Díaz, Roberto Rico-Rodríguez, Aracely Hernández-Ramírez, Jorge Luis Guzmán-Mar, Lourdes Maya-Treviño, Laura Hinojosa-Reyes
B14	**PHOTOCATALYTIC DEGRADATION OF IBUPROFEN PRESENT IN WATER UNDER UV RADIATION** Denia Alessandra Castro Campoy, Diana Vargas Hernández, José Ronaldo Herrera Urbina, Judith Celina Tánori Córdova
B15	**Zr IMPREGNATION-PILLARED CLAY APPLICATION IN PHOTOCATALYTIC OXIDATION OF WINERY WASTEWATER** Ana R. Teixeira
B25	**INFLUENCE OF LED LIGHT QUALITY AND INTENSITY ON THE GROWTH OF ARTHROSPIRA PLATENSIS** González-Ortega, F.A., Hernández-Martínez, K.A., Rodríguez-Sierra. J.C.
B21	**PHOTOCATALYTIC EVALUATION OF TITANIA MODIFIED WITH LANTHANUM FOR THE DEGRADATION OF NAPROXENA.** Marizcal-Barba, I. Limón-Rocha, J.L. Rico, R. Romero Toledo, A. Pérez-Larios
B22	**EFFECT TiO_2 DOPED WITH Co, Cu, Fe AND Ni ON ITS PHOTOCATALYTIC ACTIVITY IN THE DEGRADATION OF 2,4-DICHLOROPHENOL AND 2,4-DICHLOROPHENOXIACETIC ACID** I. Limón-Rocha, R. Romero Toledo, C. A. Guzmán, J. L. Rico, And A. Pérez-Larios
B26	**STUDY OF THE EFFECT OF PH AND THE AMOUNT OF CATALYST ON THE PHOTOCATALYTIC DEGRADATION OF PARAQUAT OVER TiO_2** S. A. Pablo, L. V. Castro, M. E. Manríquez, E. Ortiz-Islas
B27	**EVALUATION OF THE EFFECT OF SPIRULINA MAXIMA IN REDUCING HERBICIDES** M. Serna-Pérez, R. Zepeda-Bautista, L. V. Castro
D01	**OBTENTION OF ZnO-Al2O_3-TiO_2 AND MgO-Al_2O_3-CeO_2 TERTIARY OXIDES FROM HYDROTALCITES FOR THEIR USE AS CATALYSTS IN THE PHOTOCATALYTIC DEGRADATION OF IBUPROFEN** L. V. Castro, M. E. Manriquez, E. Ortiz-Islas, Yair Cruz, Jesús E. Aquino
D02	**C. albicans PHOTOINACTIVATION IN VISIBLE REGION BY CuS/TiO_2 NANOPARTICLES** Eva M. Barrera-Rendón; Jesus I. Morales -Jiménez; Vicente Rodríguez-González
D04	**PERFORMANCE OF THE TERNARY ZnO/$FeTiO_3$/MnS PHOTOCATALYST ON THE SOLAR DEGRADATION OF CIPROFLOXACIN** Raisa Núñez-Salas, Aracely Hernández-Ramírez, Laura Hinojosa-Reyes, Jorge Guzmán-Mar, Miguel Gracia-Pinilla, Lourdes Maya-Treviño
D07	**g-C_3N_4/Co_3O_4 PHOTOCATALYST COMPOSITE FOR SIMULTANEOUS METHYLENE BLUE DEGRADATION AND Cr(VI) REDUCTION** E. Flores-Rojas, J. Soto-Hernández, M.A Mantilla-Ramírez, E. Samaniego-Benítez
D08	**TITANIUM DIOXIDE COMPOSITES DOPED WITH Ni, In AND W DEPOSITED AS THIN FILMS BY SPIN COATING AND ITS PHOTOCATALYTIC ACTIVITY IN THE DEGRADATION OF EOSINE AND 4-CHLOROPHENOL** P. C. Hernández-Del Castillo, V. Rodríguez-González

POSTER SESSION

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D09	**BEHAVIOUR OF THE ENERGY LEVELS OF Au, Ag, Cu, Fe, Mn, Ni, Pd, Pt AND Rh ON TITANATE NANOTUBES AND THEIR EFFECT IN THE HYDROGEN EVOLUTION REACTION** R. Camposeco, M. Hinojosa-Reyes, O. Miguel, R. Zanella
D10	**PHOTOCATALYTIC DEGRADATION OF METHYLENE BLUE DYE USING TARA GUM-ACRYLAMIDE-TiO_2 AND INULIN-ACRYLAMIDE-TiO_2 HYDROGELS SYNTHESIZED BY GAMMA IRRADIATION** Maribel Luna, Florinella Muñoz, Marta Litter, Roque Santos
D12	**GREEN SYNTHESIS OF CU/TiO_2 BY EXTRACT OF Lippia graveolens (MEXICAN OREGANO) USED IN PHOTOCATALYTIC OXIDATION OF HMFCA TO FFCA** Bárbara Jazmín Lino Galarza, Javier Rivera de la Rosa, Carlos Javier Lucio Ortiz, Diana Bustos Martínez, Enrique Escárcega González
D16	**PHOTORESPONSE AND REDUCTION OF THE PHOTOCATALYTIC ACTIVITY OF TiO_2 NANOTUBES PREPARED BY ANODIZATION IN ELECTROLYTES OF DIFFERENT CHEMICAL NATURE** P.I. Zaragoza-Sánchez, R. Magaña-López, B.E. Jiménez-Cisneros and A. Chávez-Mejía
D19	**USE OF SELECTED SCAVENGERS IN ALPHA-PINENE OXIDATION BY $MoCl_2O_2$BIPY COMPLEX ANCHORED ON NANO-TiO_2 WITH LIGHT AND O_2** Henry Martínez Q., Angélica Neira, Edgar A. Páez-Mozo, Fernando Martínez O.
D21	**PHOTOCATALYTIC ACTIVITY OF Bi_2O_3/BiOCl HETEROJUNCTIONS UNDER UV AND VISIBLE LIGHT ILLUMINATION FOR DEGRADATION OF CAFFEINE** Ana Laura Ruiz-Castillo, Mariana Hinojosa-Reyes, Roberto Camposeco-Solis, Facundo Ruiz
D23	**SYNTHESIS OF BINARY SnO_2/TiO_2 AND TERNARY SnO_2/TiO_2/NANOSHEETS G-C_3N_4 AND THEIR PHOTOCATALYTIC PERFORMANCE IN METHYL ORANGE AND CIPROFLOXACIN DEGRADATION UNDER UV LIGHT** Patricia Becerra-Castañeda, Gonzalo A. Escareño-Torres, Luis Mario González-Rodríguez, Christian Gómez-Solís, Cristina J. Carrillo-Martínez, José Alfonso Pinedo-Escobar
E04	**APPLICATION OF UV/H_2O_2 TECHNOLOGY TO ENHANCE THE REUSE OF MUNICIPAL WASTEWATER: A CASE STUDY** Cristian Ferreiro, Josu Sanz, Ana de Luis, José Ignacio Lombraña
E08	**SOLAR HETEROGENEOUS PHOTO-FENTON AT NEUTRAL CONDITIONS FOR INACTIVATION OF E. coli AND S. typhimurium USING LOW AMOUNTS OF IRON OXIDE** Diego Alejandro Pino Sandoval, María Elena Cantú Cárdenas, Lourdes Maya Treviño, Araceli Hernández Ramírez
E09	**HEMATITE AND MAGNETITE MODIFIED GLASS-CERAMIX AS ACTIVE VISIBLE LIGHT-DRIVEN PHOTOCATALYTIC AND PHOTO-FENTON DEGRADATION OF WATER CONTAMINANTS** Raúl Julián Revelo, Eduardo Bellini Ferreira, Luis Alejandro Galeano
E11	**CRITICAL ANALYSIS OF THE INFLUENCE FACTORS ON THE EFFICIENCY AND KINETICS DEGRADATION OF ANTIBIOTICS BY THE PHOTO FENTON-LIKE PROCESS** Rojas Sandoval, Saraí; Arzate, Sandra, Ramírez-Zamora, Rosa-María
E13	**EFFECT OF WATER MATRIX ON THE THIABENDAZOLE AND KINETICS DEGRADATION BY HETEROGENEOUS PHOTO-FENTON LIKE AND PHOTO-NaOCl/Fe PROCESSES USING COPPER SLAG AS IRON PHOTOCATALYST** García-Estrada, Reyna, Arzate, Sandra; Ramírez-Zamora, Rosa-María
E15	**DEGRADATION OF METHYL ORANGE AND METHYLENE BLUE BY HETEROGENEOUS PHOTO-FENTON** Diana Gabriela Domínguez-Talamantes, Diana Vargas-Hernández, Jesús Tadeo Hernández-Oloño, Enrique Rodríguez-Castellón, Judith Celina Tánori-Córdova

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E17	**DEGRADATION OF METHYL ORANGE BY HETEROGENEOUS SOLAR PHOTO-FENTON Fe/Al_2O_3 CATALYST** Jesús Tadeo Hernández Oloño; Antonia Infantes Molina; Diana Vargas Hernández; Diana Gabriela Domínguez Talamantes; Enrique Rodríguez Castellón; Judith Celina Tanori Córdova
E18	**EVALUATION OF THE DEGRADATION OF DICLOFENAC IN AQUEOUS PHASE THROUGH A HELICOIDAL PHOTOREACTOR** Paola Rodríguez-Saldarriaga, Gina Hincapié-Mejía, Gustavo A. Peñuela
E21	**PHOTODEGRADATION OF IBUPROFEN BY HETEROGENEOUS PHOTO-FENTON PROCESS** Denia Alessandra Castro Campoy, Diana Vargas Hernández, José Ronaldo Herrera Urbina, Judith Celina Tánori Córdova
E26	**TUBULAR MEMBRANE PHOTO-REACTOR FOR RADIAL SMART-DOSING OF IRON (II) TO PROMOTE PHOTO-FENTON AT NEUTRAL PH TOWARDS THE REMOVAL OF CONTAMINANTS OF EMERGING CONCERN IN URBAN WASTEWATERS** Carla Santos, Ana I.Gomes. Vítor J.P. Vilar
F05	**EVALUATION OF BLACK SAND AS PHOTOCATALYST FOR HYDROGEN PRODUCTION USING FORMIC ACID** Cinthya Grisell Tabla-Vázquez, Ariadna-Alicia Morales-Pérez, Rosa-María Ramírez-Zamora
F07	**PRODUCTION OF HYDROGEN AND METHANE BY PHOTOREFORMING OF FERMENTATION BY-PRODUCTS USING Pt/TiO_2** Marina Montserrat Atilano Camino, Alcione García González, Daniel Simón Olivo Alanís, Patricia Quintana Owen, Refugio Bernardo García Reyes

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