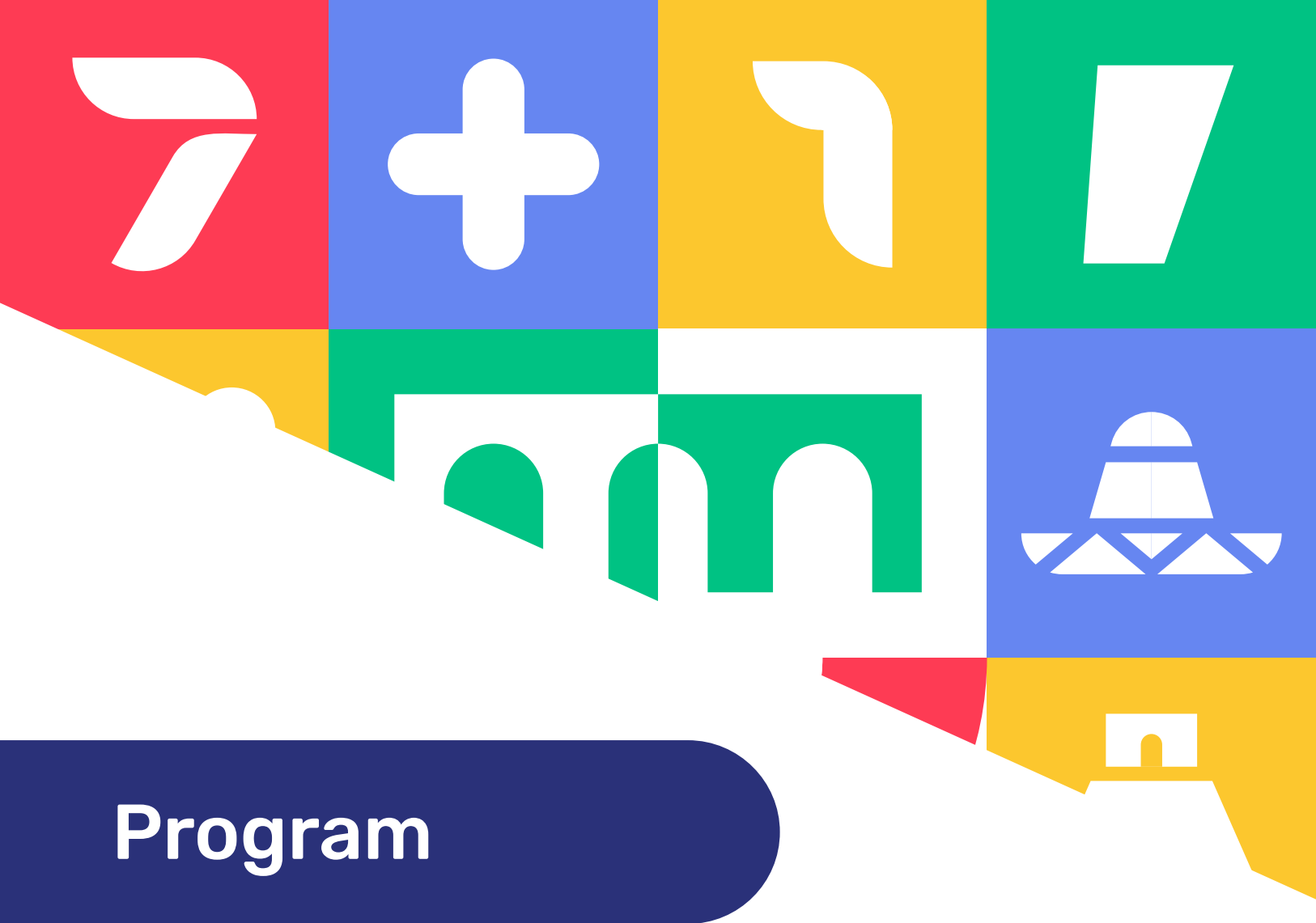




Program

International Meeting for Researchers in Materials and Plasma Technology



International Meeting for
Researchers in Materials
and Plasma Technology
Querétaro, Mexico, 2025



Juan Muñoz Saldaña

Chairman 7th IMRMPT

Ely Dannier V. Niño

Editor, Layout Coordinator

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Invited Speakers

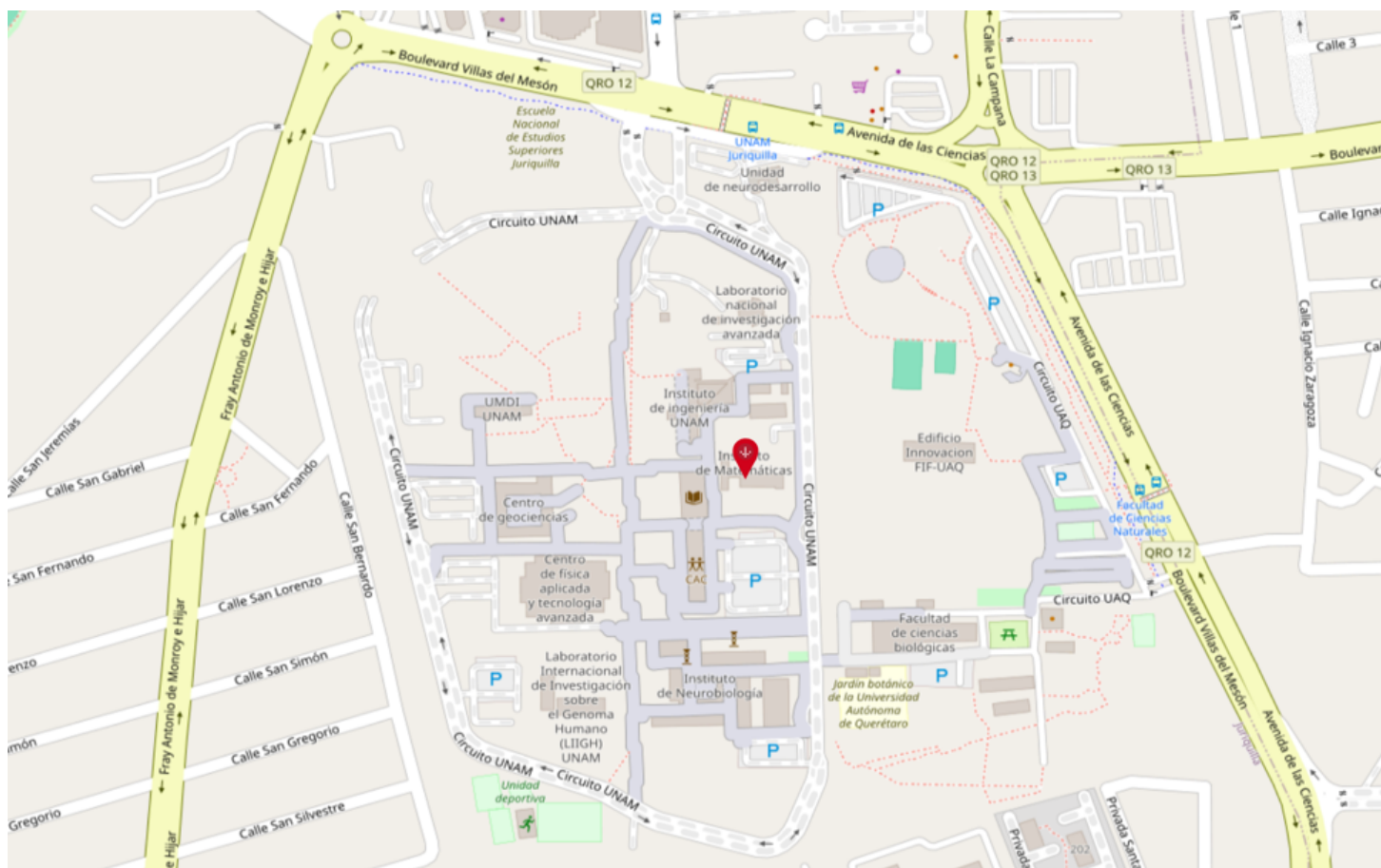
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- ✓ Juan Claudio Nino
University of Florida, United States of America
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Instituto Politécnico Nacional, México



CONFERENCE VENUE

Universidad Nacional Autónoma de México, campus Juriquilla

The Juriquilla Campus of the National Autonomous University of Mexico (UNAM) is located in Juriquilla town, Querétaro, Mexico; the academic and scientific centers and institutes house some undergraduate and graduate study programs oriented to natural sciences and engineering. The campus contains common spaces (administrative building, library, auditorium, sports areas) and buildings of various UNAM centers and institutes; the Academic Cultural Center (auditorium “Flavio Mena Jara,” home of the 7+1 IMRMPT, is routinely visited by external audiences due to the extensive and continuous cultural programming.





CONFERENCE ROOM

Wednesday, April 09, 2025

Auditorium Doctor Flavio Mena Jara

Los Arcos

Corregidora

Bernal

Sierra Gorda

Tequisquiapan

Thursday, April 10, 2025

Auditorium Doctor Flavio Mena Jara

Los Arcos

Corregidora

Bernal

Sierra Gorda

Tequisquiapan

Friday, April 11, 2025

Auditorium Doctor Flavio Mena Jara

Los Arcos

Corregidora

Bernal

Sierra Gorda

Tequisquiapan

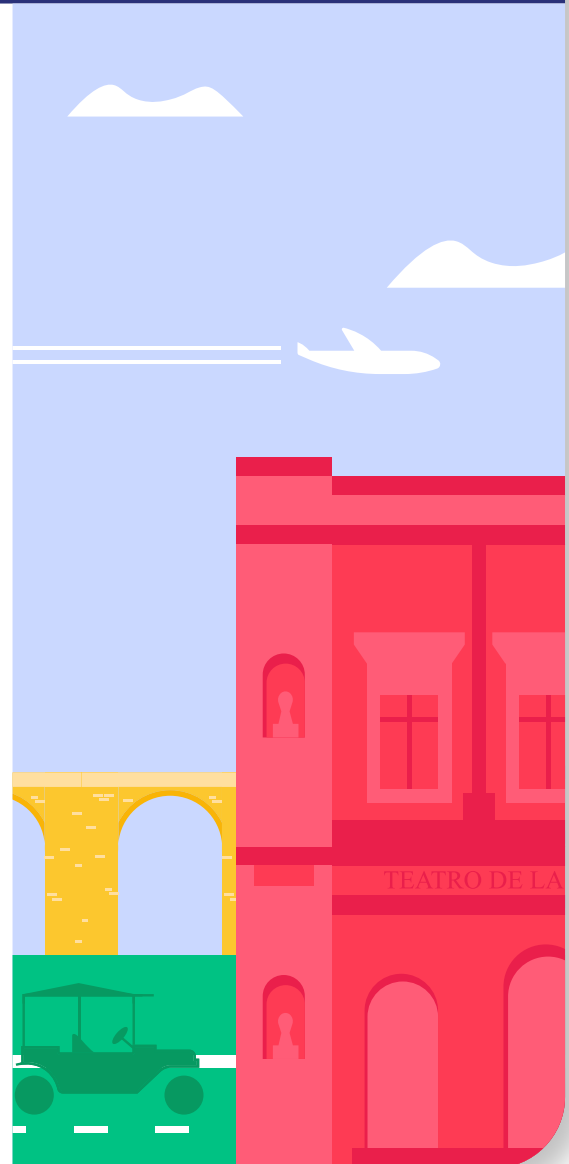


International Meeting for Researchers in Materials and Plasma Technology

Querétaro, Mexico, 2025

Topics

- New Materials
- Renewable Energy
- Photonic Materials
- Structural Integrity
- Biomedical Coatings
- Additive Manufacturing
- Non-Destructive Evaluation
- Environmental Remediation
- Characterization of Materials
- Thin Films and Nanomaterials
- Wear and Corrosion/Oxidation
- Plasma Applications and Technologies
- Modeling, Simulation, and Diagnostics
- Education in Materials, Science, Engineering, and Technology
- Science, Engineering, Technology, and Innovation for Social Inclusion
- Surface Modification (Ion Implantation, Ion Nitriding, Magnetron Sputtering, Cathodic Arc, Sol-Gel, Thermal Spray)





International Meeting for
Researchers in Materials
and Plasma Technology
Querétaro, Mexico, 2025



PROGRAM

7+1' IMRMPT



FIRST DAY

April 09, 2025

DAY HOUR	WEDNESDAY MORNING
8:00 – 9:00	Registration
9:00 – 10:00	Opening Ceremony: 7+1' International Meeting for Researchers in Materials and Plasma Technology (7+1' IMRMPT) Conference Room: Auditorium Doctor Flavio Mena Jara
10:00 – 10:20	Coffee Break
10:20 – 11:20	Plenary Lecture I: Electronic materials in extreme environments: operando performance under mixed neutron and gamma radiation Keynote Speaker: Juan Claudio Nino Conference Room: Auditorium Doctor Flavio Mena Jara
11:20 – 12:00	Keynote I: Introduction to SOARD Keynote Speaker: Travis Tubbs Conference Room: Auditorium Doctor Flavio Mena Jara
12:00 – 12:40	Keynote II: Implementation of HiPIMS technology in different industrial sectors Keynote Speaker: Iván Fernández Martínez Conference Room: Auditorium Doctor Flavio Mena Jara
12:40 – 13:00	Oral Presentation: Surface and Coatings Journal Speaker: Samir Aouadi Conference Room: Auditorium Doctor Flavio Mena Jara
13:00 – 15:00	Lunch Break



DAY HOUR	WEDNESDAY AFTERNOON
15:00 – 16:00	Plenary Lecture II: Graphene oxide: synthesis, functionalization, molecular simulation and applications Keynote Speaker: Enrique Mejía Ospino Conference Room: Auditorium Doctor Flavio Mena Jara
16:00 – 16:20	Oral Presentation ID 183: Extraction and analysis of the physicochemical properties of hydroxyapatite (HAp) obtained from horse humerus bones of varying ages (1, 3, 6, and 8 years) after undergoing low-temperature calcination Speaker: Brandon Alexis Correa Piña Conference Room: Los Arcos
	Oral Presentation ID 34: The functional derivative of the critical temperature T_c with respect to the electron-phonon spectral function $\alpha^2F(\omega)$ and a possible mechanism for predicting T_c Speaker: Jose Alfredo Camargo Martínez Conference Room: Corregidora
	Oral Presentation ID 32: High-performance stellite 6 hard facing coatings: optimization and characterization of thick deposits via AC-HVAF Speaker: Juan Sebastian Castillo Figueroa Conference Room: Bernal
	Oral Presentation ID 150: Injection of magnetic nanofluids in high-salinity, heavy oil-saturated sandstone: overcoming formation damage for enhanced oil recovery Speaker: Jimena Gomez Conference Room: Sierra Gorda
	Oral Presentation ID 58: Multifunctional nanostructures: adaptability in pollutant degradation and other advanced applications Speaker: Miryam Rincon Joya Conference Room: Tequisquiapan
16:20 – 16:40	Oral Presentation ID 135: Influence of milling parameter on the mixtures between biogenic source hydroxyapatite and bioactive glass in S53P4 composition Speaker: Paola Forero Conference Room: Los Arcos
	Oral Presentation ID 30: Ground state of a mixture of spinless bosons and SU(3) fermions Speaker: Jereson Silva Conference Room: Corregidora
	Oral Presentation ID 94: Optimization strategies for combustion-based thermal spray processes: AC-HVAF Speaker: Víctor Dahián Saldarriaga Montoya Conference Room: Bernal
	Oral Presentation ID 120: From graphene oxide to nanoarchitectures: modulating its properties through pH variations Speaker: Cintia Yvette López Ruíz Conference Room: Sierra Gorda



	Oral Presentation ID 112: Synthesis of aurivillius bismuth titanate ($\text{Bi}_4\text{Ti}_3\text{O}_{12}$): influence of solid-state reaction temperature on its photocatalytic and adsorption properties Speaker: Monica Liliana Rojas Florez Conference Room: Tequisquiapan
16:40 – 17:00	Oral Presentation ID 151: Formulation of bioceramic slurries with applications in 3D printing Speaker: Héctor Gustavo Ceja Alejo Conference Room: Los Arcos
	Oral Presentation ID 55: Role of the magnetic force in a superconducting meso-wedge: Possible diode effect Speaker: Jose Jose Barba Ortega Conference Room: Corregidora
	Oral Presentation ID 22: Silhouette optimization of NACA 0015 Speaker: José Antonio Parada Marín Conference Room: Bernal
	Oral Presentation ID 70: Advanced two-objective optimization of thickness and large area homogeneity of ZnO ultrathin films deposited by atomic layer deposition Speaker: Axel Agustin Ortiz Atondo Conference Room: Sierra Gorda
	Oral Presentation ID 84: Edge-oxidized graphene oxide as a support for TiO_2 nanoparticles: a promising material for the removal and photocatalytic degradation of rhodamine B (RB) Speaker: Elizabeth Yuliet Urrea Gonzalez Conference Room: Tequisquiapan
17:00 – 17:20	Oral Presentation ID 187: Structural and morphological changes in biogenic hydroxyapatite: impact of thermal processing Speaker: Leon R. Bernal Alvarez Conference Room: Los Arcos
	Oral Presentation ID 41: Integrating computational and experimental approaches in materials optimization through the rain-beacon-exploration algorithm Speaker: Jan Mayen Conference Room: Corregidora
	Oral Presentation ID 38: Nickel-based hard facing coatings deposited by AC-HVAF thermal spraying Speaker: Nestor Giovanni Yomayzu Sierra Conference Room: Bernal
	Oral Presentation ID 14: Silicate recycled glass frits as an alternative for YAG:Dy,Eu phosphor-in-glass composites for LED applications Speaker: Josefina Alvarado Rivera Conference Room: Sierra Gorda
	Oral Presentation ID 218: Polymeric gels based on eutectic solvents for the next generation of iontronics Speaker: Josué D. Mota-Morales Conference Room: Tequisquiapan
17:20 – 17:40	Oral Presentation ID 13: Comprehensive methodology for personalized prostheses: case study of oculopalpebral and somatic prostheses using 3D printing Speaker: Diana Denisse Bohorquez Vivas Conference Room: Los Arcos



	Oral Presentation ID 20: Evaluation of the thermo-mechanical properties of cement-based materials used for thermal energy storage Speaker: Luisa Fernanda Ortiz Vásquez Conference Room: Corregidora
	Oral Presentation ID 29: Microstructure and mechanical properties comparison of Inconel 625 coatings fabricated with different conditions by AC-HVAF Speaker: Sergio Daniel Rodriguez Arevalo Conference Room: Bernal
	Oral Presentation ID 97: Impact of the deposit conditions on titanium ferrite thin films with advanced properties for LMR optical sensors Speaker: Manuel Alejandro Quijano Jaramillo Conference Room: Sierra Gorda
	Oral Presentation ID 95: Conceptual design of an artificial tree with biologically-inspired features Speaker: Daniel Felipe Reyes Prada Conference Room: Tequisquiapan
17:40 – 18:00	Coffee Break
18:00 – 19:00	Poster Section

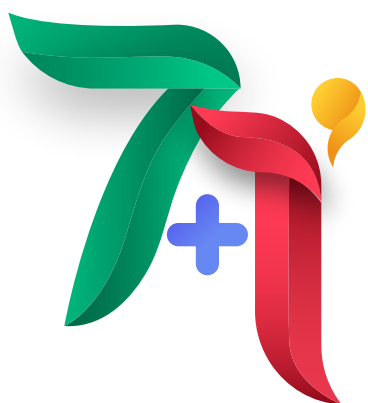


POSTER PRESENTATION

ID	WEDNESDAY AFTERNOON
21	Presentation: Study of the electronic properties of Bi_2Te_3 and MnBi_2Te_4 implementing the SIESTA computational code Speaker: Rommel Flores Cruz
36	Presentation: Synthesis of hybrid pigments from tagetes erecta inspired by maya blue Speaker: Jullieth Alexandra Morgado Martínez
39	Presentation: Molecular Docking between quinolines compounds and pyrethroids: a theoretical study Speaker: Zianya Gómez Soto
43	Presentation: Evaluation of the photocatalytic property of hydroxyapatite in the degradation of methylene blue Speaker: Saul Oswaldo Hernández Padrón
63	Presentation: System for the study of the atmospheric water condensation process on copper surfaces with nano and micro structured treatments Speaker: Veronica Vázquez
65	Presentation: Piezo-photocatalytic Bismuth-based perovskite Speaker: Jaslehiry Annel Aquino Velázquez
66	Presentation: Photocatalytic bismuth-based heterojunctions for water treatment Speaker: Diana Carolina Torres Márquez
68	Presentation: About Fenton's reaction, Fe_2O_3 NPs and their use to transform CO_2 in organic compounds Speaker: Raúl Suárez-Parra
81	Presentation: History matching and numerical simulation of electromagnetic heating with graphene-functionalized iron oxide nanoparticles for enhanced recovery of Colombian heavy crude oil Speaker: Paola Leon
82	Presentation: Enhanced photoelectrocatalytic performance of titanium dioxide/reduced graphene oxide nanocomposites for potential use in hydrogen production Speaker: Iveth Vanessa Ayala Vilorio
83	Presentation: Physicochemical and photoelectrochemical characterization of zinc oxide/graphitic carbon nitride nanocomposites for the potential use as electrodes in photoelectrocatalytic water splitting Speaker: Camilo Ernesto González Arias
86	Presentation: TiO_2 screen printing scaling process for the development of large-area perovskite solar cells Speaker: Christopher Rosiles Perez
87	Presentation: Evaluation of chemically modified graphene-based materials for microplastic capture in aqueous environments: a molecular dynamics approach Speaker: Brayan Alberto Arenas Blanco
88	Presentation: Development of a home-made photoreactor for hydrogen production using graphene-based nanomaterials as photocatalysts Speaker: Claudia Alejandra Cajicá
102	Presentation: Characterization of carbon dots synthesized from vegetal peels and separated by chromatography Speaker: Angela Janet García Salcedo
116	Presentation: Production of cassava starch plastics Speaker: Valery Navarro Aguirre



119	Presentation: Viscosity reduction in heavy crude oil using graphene oxide-magnetite nanocomposites under microwave irradiation: an experimental approach Speaker: Nelson Gutierrez-Niño
125	Presentation: Hydrogen from water hydrolysis using the intermetallic CaAl_4 synthesized by mechanical alloying Speaker: Luis Gerardo García Velázquez
126	Presentation: Hydrogen generation during ball milling of Fe_2Al_5 alloy Speaker: Luis Gerardo García Velázquez
139	Presentation: Amidation of sludge from palm oil industry oxidation pools: sustainable production of materials with surfactant properties for oil-in-water emulsification Speaker: Javier Chaparro
141	Presentation: Catalytic deoxygenation of fatty acids from crude palm oil over Ni@rGO and Co@rGO to produce green diesel Speaker: Maria Fernanda Mercado
144	Presentation: DFT study of the structural and electronic properties of ZnO-O (000-1) polar surface Speaker: Roberto Silva González
145	Presentation: Mechanical alloy of $\text{Al}+\text{M1}+\text{M2}$ ($\text{M1}=\text{Fe, Ni, Cu, Zn}$ AND $\text{M2}=\text{Ga, Li and C}$) for the generation of hydrogen for possible mobile applications from water Speaker: Josue Blancas
160	Presentation: Carbon quantum dots obtained from water hyacinth to improve the photocatalytic activity of $\text{Bi}_{12}\text{TiO}_{20}$ in the elimination of Rhodamine B Speaker: Anyi Ramirez Muñoz
161	Presentation: Photo-electrochemical evaluation of $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ electrodes fabricated by spray coating Speaker: Arlete Yuriana Vázquez García
162	Presentation: Synthesis of $\text{TiO}_2\text{-Bi}_4\text{Ti}_3\text{O}_{12/\alpha}\text{-Bi}_2\text{O}_3$ composites for synergetic adsorption and photocatalytic degradation rhodamine B dye Speaker: Jhon Sebastián Pérez Bedoya
165	Presentation: Effect of temperature and reaction time on the synthesis of BiFeO_3 by solid-state reaction and its application in the photocatalysis of rhodamine B Speaker: Carlos Benítez Díaz
168	Presentation: Synthesis of BFO system compounds via thermal spraying and their application in photocatalytic processes Speaker: Carlos Benítez Díaz
181	Presentation: Experimental evaluation of the temperature increase distribution in an electromagnetic heating system integrated with iron oxide nanoparticle injection for heavy crude oils Speaker: Daniela Barrera
182	Presentation: Fabrication of black silicon through electrochemical anodization coupled to a photoacoustic system Speaker: Andrés Felipe Cartagena Toro
192	Presentation: Synthesis of boron-doped diamond coatings in the solid state for wastewater treatment Speaker: Jorge Morales
194	Presentation: Analysis of CO_2 emission trends in cement plants in Mexico: technical and social proposals for sustainable mitigation Speaker: Daniel Hernández Martínez



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