

Programme

Workshop on

Modeling and Simulation for Science and Engineering



Virtual live Broadcast

March 15-16, 2021

Colombia



Foristom
Foundation

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Invited Speakers / Conferencistas Invitados

- ✓ Dr. José Luis Endrino
Nano4Energy, Spain
- ✓ Dra. Raquel González Arrabal
Universidad Politécnica de Madrid, Spain
- ✓ Dr. Francisco de Paula Montero Chacón
Universidad Loyola Andalucía, Spain
- ✓ Dr. Eduardo Daniel Méndez Morales
Universidad de la República, Uruguay
- Claudinei de Souza Guimaraes
Universidade Federal do Rio de Janeiro, Brazil
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Workshop on

Modeling and Simulation for Science and Engineering

Topics

Mechatronic Systems

Computer Science

Dynamic Systems Modeling

Physical-Chemistry Modeling

Physics-Mathematical Modeling

Education on Science, Engineering, and Technology



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PROGRAM / PROGRAMA
IV WMSSE

FIRST DAY / PRIMER DÍA

15th March 2011 / 15 de marzo de 2021

DAY DÍA	MONDAY AFTERNOON / LUNES TARDE
HOUR HORA	
13:45 – 14:00	Opening Ceremony: IV Workshop on Modeling and Simulation for Science and Engineering (IV WMSSE) Conference Room / Auditorio: Principal room
14:00 – 14:20	Plenary Lecture I: Mathematical modeling applied to the emission of air pollutants from different sources in the industrial sectors Keynote Speaker / Ponente Magistral: Claudinei de Souza Guimarães Conference Room / Auditorio: Principal room
14:20 – 14:40	Plenary Lecture II: Lead contamination: thematic axis for disciplinary integration in secondary education Keynote Speaker / Ponente Magistral: Eduardo Daniel Méndez Conference Room / Auditorio: Principal room
14:40 – 15:00	Oral Presentation ID 01: Effect of the roughness on the vortex matter in 2 +1 and 3+1 multiband system Speaker / Ponente: Cristian Andrés Aguirre Tellez Conference Room / Auditorio: Principal room
15:00 – 15:20	Oral Presentation ID 02: Electronic and structural properties in nanocluster $Al_{n-x}Ni_x$ Speaker / Ponente: José Blanco Conference Room / Auditorio: Principal room
15:20 – 15:40	Oral Presentation ID 03: Estimation models of short-lived climate pollutants (SLCPs) generated by solid waste management using SWEET 2.1 Too Speaker / Ponente: Hugo Fernando Castro Silva Conference Room / Auditorio: Principal room
15:40 – 16:00	Oral Presentation ID 05: Physical – mathematical model to determine the structural efficiency of sections shaped as ellipses and parallelograms when used in reinforced concrete columns Speaker / Ponente: Jorge Fernando Márquez Peñaranda Conference Room / Auditorio: Principal room
16:00 – 16:20	Oral Presentation ID 06: Experimental assessment of swelling potential in montmorillonitic soils Speaker / Ponente: Juan Carlos Ruge Conference Room / Auditorio: Principal room
16:20 – 16:40	Virtual Coffee / Café Virtual
16:40 – 17:00	Oral Presentation ID 08: Estimation of greenhouse gas emissions in civil construction for a modular construction on the campus of the Federal University of Rio de Janeiro Speaker / Ponente: Claudinei Guimarães Conference Room / Auditorio: Principal room
17:00 – 17:20	Oral Presentation ID 09: Stress fracture of non-reinforced concrete: analytical solutions and experimental development Speaker / Ponente: Carlos Pastrán Beltrán Conference Room / Auditorio: Principal room

17:20 – 17:40	<p>Oral Presentation ID 10: Curricula framework for a digital transformation master</p> <p>Speaker / Ponente: Milton Jesus Vera Contreras</p> <p>Conference Room / Auditorio: Principal room</p>
17:40 – 18:00	<p>Oral Presentation ID 12: Elastic analysis of reinforced concrete beams subjected to bending using finite element method</p> <p>Speaker / Ponente: Nelson Afanador García</p> <p>Conference Room / Auditorio: Principal room</p>
18:00 – 18:20	<p>Oral Presentation ID 14: Thermodynamic modeling of supercritical CO₂ brayton cycle based on main compression intercooling configuration</p> <p>Speaker / Ponente: Sofia Orjuela Abril</p> <p>Conference Room / Auditorio: Principal room</p>
18:20 – 18:40	<p>Oral Presentation ID 18: Autoregressive modeling of chromatographic signals from urine samples for prostate cancer diagnosis</p> <p>Speaker / Ponente: Angelo Joseph Soto Vergel</p> <p>Conference Room / Auditorio: Principal room</p>
18:40 – 19:00	<p>Oral Presentation ID 34: Design of an automated system for the heating of a swine farming module</p> <p>Speaker / Ponente: Wilson Antonio Pérez Torrado</p> <p>Conference Room / Auditorio: Principal room</p>

SECOND DAY / SEGUNDO DÍA

16th March 2021 / 16 de marzo de 2021

DAY DÍA	TUESDAY MORNING / MARTES MAÑANA	
HOUR HORA		
7:45 – 8:00	Virtual Coffee / Café Virtual	
8:00 – 8:20	Plenary Lecture III: Multiscale, multiphysical simulations of degradation mechanisms in graphite-based batteries Keynote Speaker / Ponente Magistral: Francisco Montero-Chacón Conference Room / Auditorio: Principal room	
8:20 – 8:40	Plenary Lecture IV: How I made an international career in surface engineering? Keynote Speaker / Ponente Magistral: José Luis Endrino Conference Room / Auditorio: Principal room	
8:40 – 9:00	Plenary Lecture V: The role of computer simulations on materials studies for nuclear fusion reactor applications Keynote Speaker / Ponente Magistral: Raquel González Arrabal Conference Room / Auditorio: Principal room	
9:00 – 9:20	Plenary Lecture VI: New insights into the Turkevich synthesis of spherical gold nanoparticles Keynote Speaker / Ponente Magistral: Eduardo Daniel Méndez Conference Room / Auditorio: Principal room	
9:20 – 9:40	Plenary Lecture VII: Evaluation of sulfur dioxide (SO ₂) in air quality from the emissions of supply boat vessels anchored in the Port of Rio de Janeiro using experimental results and mathematical modeling Keynote Speaker / Ponente Magistral: Claudinei de Souza Guimarães Conference Room / Auditorio: Principal room	
9:40 – 10:00	Plenary Lecture VIII: Winter school of interdisciplinary education: a training experience for university teachers Keynote Speaker / Ponente Magistral: Mariana Pereyra Conference Room / Auditorio: Principal room	
10:00 – 10:20	Virtual Coffee / Café Virtual	
10:20 – 10:40	Oral Presentation ID 04: Study of factors affecting hardness behavior of biopolymers based on potato and banana peels: a factorial experimental evaluation Speaker / Ponente: Hariana Isabel Farfan Benavides Conference Room / Auditorio: Principal room	
10:40 – 11:00	Oral Presentation ID 07: Novel method for stress history analysis in normally consolidated clays Speaker / Ponente: Juan Carlos Ruge Conference Room / Auditorio: Principal room	
11:00 – 11:20	Oral Presentation ID 16: Modeling and simulation of improvement proposal for rice agriculture Speaker / Ponente: Sofía Orjuela Abril Conference Room / Auditorio: Principal room	

11:20 – 11:40	Oral Presentation ID 17: Comparison of the line method and analytical methods for modeling the heat equation Speaker / Ponente: Christian Nolasco Serna Conference Room / Auditorio: Principal room
11:40 – 12:00	Oral Presentation ID 19: Study of the existing relationship between universal fatigue curves and instrumented indentation for metallic materials Speaker / Ponente: Arley Garcia Conference Room / Auditorio: Principal room

DAY DÍA	TUESDAY AFTERNOON / MARTES TARDE
HOUR HORA	
13:45 – 14:00	Virtual Coffee / Café Virtual
14:00 – 14:20	Oral Presentation ID 36: Picturing the thermodynamic universe with Frida Kahlo Speaker / Ponente: Eduardo Daniel Méndez Conference Room / Auditorio: Principal room
14:20 – 14:40	Oral Presentation ID 13: A RSTUDIO-based modeling program using Gaussian Plume equation for dispersion of PM10 emissions by stationary point sources of a steel industry in Brazil Speaker / Ponente: Claudinei de Souza Guimarães Conference Room / Auditorio: Principal room
14:40 – 15:00	Oral Presentation ID 20: Strategic diagnostics of conditions for the implementation of a reverse logistics management model in the furniture manufacturing supply chain in Cúcuta, Colombia Speaker / Ponente: Pedro Antonio Garzon Agudelo Conference Room / Auditorio: Principal Room
15:00 – 15:20	Oral Presentation ID 21: Simulation of a full-scale activated sludge reactor: an approach to airflow rate optimization Speaker / Ponente: David Camilo Cueto Ferreira Conference Room / Auditorio: Principal room
15:20 – 15:40	Oral Presentation ID 22: Carrier frequency offset compensation to enhance the performance in radio-over-fiber transmissions with 5G network characteristics Speaker / Ponente: Dúmar Hidalgo Conference Room / Auditorio: Principal room
15:40 – 16:00	Oral Presentation ID 23: Analysis of the titanium ions concentration implanted in low alloy steel Speaker / Ponente: Christian Calero Conference Room / Auditorio: Principal room
16:00 – 16:20	Oral Presentation ID 24: Determination of corrosion products for steam and flue gas injection environments in a Colombian field by using thermodynamic simulation with HSC chemistry Speaker / Ponente: Julian Moreno-Cainaba Conference Room / Auditorio: Principal room
16:20 – 16:40	Virtual Coffee / Café Virtual

<p>16:40 – 17:00</p>	<p>Oral Presentation ID 25: Magnetic response in a two-band superconducting sample: role of surface roughness Speaker / Ponente: Cristian Andrés Aguirre Tellez Conference Room / Auditorio: Principal room</p>
<p>17:00 – 17:20</p>	<p>Oral Presentation ID 26: Designing and modeling of a stockpiling and concentrating plant for fluvial gold mining in the Amazon Basin Speaker / Ponente: Guillermo Ghiglino Conference Room / Auditorio: Principal room</p>
<p>17:20 – 17:40</p>	<p>Oral Presentation ID 27: Estimation of missing data in the geophysical series of precipitation in Cúcuta, Colombia Speaker / Ponente: Henry de Jesus Gallardo Perez Conference Room / Auditorio: Principal room</p>
<p>17:40 – 18:00</p>	<p>Oral Presentation ID 28: Thermodynamic stability of cultural heritage materials: gilded copper and pigments at high relative humidity and at environmental conditions of Lima, Peru Speaker / Ponente: Anibal Alviz Meza Conference Room / Auditorio: Principal room</p>
<p>18:00 – 18:20</p>	<p>Oral Presentation ID 32: Simulation of phases present in Ti-based alloys used in the absorption of hydrogen in the solid state Speaker / Ponente: Alejandro David Martinez Amariz Conference Room / Auditorio: Principal Room</p>
<p>18:20 – 18:40</p>	<p>Oral Presentation ID 33: Study case: evaluation of pallets manufactured by structural foam with a mixture of recycled / new HPDE from analysis by the finite element method and mechanical tests Speaker / Ponente: Jose Alejandro Bayona Conference Room / Auditorio: Principal room</p>
<p>18:40 – 19:00</p>	<p>Oral Presentation ID 35: Fatigue corrosion behavior of an AISI/SAE 1015 steel with shotpeening surface treatment Speaker / Ponente: Fidel Alfonso Romero Toledo Conference Room / Auditorio: Principal room</p>

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