



MSNC | MACKENZIE

MATERIALS SCIENCE &  
NANOTECHNOLOGY  
**CONGRESS**

# Program

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Mackenzie Presbyterian University



## MSCNanotech 2025

Welcome Message for the Materials Science and Nanotechnology Congress at Mackenzie University.

Dear Distinguished Guests, Researchers, Students, and Industry Pioneers.

It is with immense pleasure and pride that we warmly welcome you to the Materials Science and Nanotechnology Congress hosted at Mackenzie University! This dynamic event will unite brilliant minds from academia, industry, and beyond to explore the frontiers of materials science and nanotechnology—fields that are shaping the future of technology, sustainability, and innovation.

Over the course of this congress, you will engage in inspiring discussions, share cutting-edge research, and build meaningful connections that will drive progress in these transformative disciplines. From advancements in nanomaterials to their applications in energy, healthcare, and environmental solutions, this gathering is a platform to exchange ideas and spark innovation.

We are thrilled to host such a vibrant and diverse community at Mackenzie University, a place renowned for fostering knowledge and excellence. Your participation is key to making this congress a hub of creativity, collaboration, and discovery.

Thank you for joining us in the Materials Science and Nanotechnology Congress, a milestone in advancing science and shaping a better future together!

Warmest regards,  
[Organization committee]  
Mackenzie University  
Materials Science and Nanotechnology Congress



## COMMITTEE

<b>Thiago da Cruz Canevari</b>	Mackenzie Presbyterian University
<b>Everton Bonturim</b>	Mackenzie Presbyterian University
<b>Marcos Massi</b>	Mackenzie Presbyterian University
<b>Antonio Augusto Couto</b>	Mackenzie Presbyterian University
<b>Christiano José Santiago de Matos</b>	Mackenzie Presbyterian University
<b>Guilhermino José Macedo Fachine</b>	Mackenzie Presbyterian University
<b>Ricardo Jorge Espanhol Andrade</b>	Mackenzie Presbyterian University
<b>Camila Marchetti Maroneze</b>	Mackenzie Presbyterian University
<b>Marcos Nogueira Eberlin</b>	Mackenzie Presbyterian University
<b>Hélio Ribeiro</b>	Mackenzie Presbyterian University
<b>Dunieskys Roberto Gonzalez Larrude</b>	Mackenzie Presbyterian University
<b>Carlos Roberto Camello Lima</b>	Mackenzie Presbyterian University
<b>Cecília de Carvalho Castro e Silva</b>	Mackenzie Presbyterian University
<b>Leonnam Gotardo Merizio</b>	USP - São Paulo
<b>Fernando Henrique Cincotto</b>	UFRJ - RJ
<b>Dr Jg Manjunatha</b>	Mangalore University - India
<b>Christopher C. Berndt</b>	Swinburne University of Technology, Melbourne, AU
<b>Korneli Grigorov</b>	Bulgarian Academy of Sciences, Bulgárian
<b>Renato Meneghetti Peres</b>	Mackenzie Presbyterian University
<b>Aryel Heitor Ferreira</b>	Instituto Mackenzie de Pesquisas em Grafeno Nanotecnologias - MackGraphe
<b>Josue Martins Goncalves</b>	Instituto Mackenzie de Pesquisas em Grafeno Nanotecnologias - MackGraphe



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# Plenary

16<sup>th</sup> November 2025

*Room - Rui Barbosa*

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**17h50 - 18h50 - Opening Lecture**

**Raman spectroscopy: a fundamental technique for investigating the properties of graphene and other two-dimensional materials**

**Plenary:** Prof. Dr. Marcos Pimenta

Universidade Federal de Minas Gerais, UFMG

17<sup>th</sup> November 2025

*Room - American School*

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**10h20 - 11h20 - Plenary Lecture 1 Room - American School**

**Surface Engineering and Science to Provide Solutions for Industry**

**Plenary:** Prof Christopher Berndt

Swinburne University of Technology - Austrália

**14h20 - 15h20 - Plenary Lecture 2 - Room - American School**

**3D Bioprinting: Redefining the Frontiers of Regenerative Medicine**

**Plenary:** Dra Janaina Dernowsek

CEO da Quantis e BioTechEd

18<sup>th</sup> November 2025

*Room - American School*

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**10h20 - 11h20 Plenary Lecture 3 - Room - American School**

**The amazing chemistry of quantum dots, plasmonic, and superparamagnetic nanoparticles**

**Plenary:** Prof. Dr Henrique E. Toma

Chemistry Institute, University of São Paulo



# Program

16<sup>th</sup> November 2025

**14h20 - 18h00 - Registration - Covered Court**

**18h50 as 20h00 - Opening Cocktail - Covered Court**

**17h20 - 17h50 - Opening Ceremony Rui Barbosa Room**

**17h50 - 18h50 - Opening Lecture- Rui Barbosa Room**

**Raman spectroscopy: a fundamental technique for investigating the properties of graphene and other two-dimensional materials**

**Plenary:** Prof. Dr. Marcos Pimenta

Universidade Federal de Minas Gerais, UFMG

17<sup>th</sup> November 2025

**09h00 - 10h00 - poster session 1 Covered Court**

**10h00 - 10h20 - Coffe Break - Covered Court**

## ***Romm. 1 Mackgraphe***

**11h20 - 12h00 - Principles of Titanium Carbo-Nitride (TiCN) PVD Coatings as a Dry Film Lubricant with Improved Hardness**

**keynote:** Prof. Dr. Korneli Grigory

Space Research and Technology Institute, Bulgarian Academy of Sciences

**12h00 - 08-010 Creep behavior and microstructural characterization of inconel 718 produced by laser powder bed fusion (LPBF)**

Presenter: Daniel Augusto De Souza Borges

(1) Mackenzie; (2) UPM; (3) IPEN; (4) UPMackenzie e ipen;

Borges, D.A.S.(1); Almeida, G.F.C.(2); Ribeiro, G.L.X.(3); Couto, A.A.(4);

**12h25 - 10-005 Influence of Cu<sub>2</sub>O and ZnO in Different Particle Sizes on Morphology and Microbial Viability in Rosin-Based Antifouling Coatings**

Presenter: Gabriel Abelha Carrijo-Gonçalves

(1) USP; (2) UNIUBE;

Carrijo-Gonçalves, G.A.(1); Oliveira, B.L.R.(2); Pinto, M.R.(2); Aoki, I.V.(1);

**12h50 as 14h20 – Lunch**



*Romm. 1 Mackgraphe*

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**15h20 - 16h00 - Nanomaterials-Based Biosensors for Biomolecule Detection**

**keynote:** Dr. J.G Manjunatha  
Bangalore University, India

**16h00 - 02-006 Design and Development of 3D-Printed Nanocomposites for Antibacterial Medical Applications**

Presenter: Stella Bruno Bozzo

(1) UPM; (2) FEMPAR; (3) Nova Analítica; (4) CENIMAT;

Bozzo, S.B.(1); Rodrigues, A.S.(2); Dias, M.S.(1); Simas, R.C.(1); Campos, A.(3); Akiba, N.(3); Maroneze, C.M.(1);  
De Almeida, H.V.(4); Ferreira, A.H.(1); E Silva, C.C.C.(1);

**16h25 - 14-002 Solution-processed 2D Materials: Applications in Electronic Devices, Chemical Sensors and Biosensors**

Presenter: Rafael Furlan De Oliveira

(1) CNPEM;

De Oliveira, R.F.(1);

**16h50 as 17h20 - ZWICK-ROELL - Testing Solutions for Hydrogen Industry**

**Keynote:** Gustavo Tavares Videira  
ZWICK-ROELL

*17h20 - 18h20 - poster session 2 Covered Court*

*18h20 - 18h40 Coffe Break - Covered Court*

17<sup>th</sup> November 2025

*Romm. 2 - João Calvino*

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**11h20 - 12h00 - Developments and Challenges of Nanofluids and Nanolubricants for Thermal Transport and Tribological Applications**

**keynote:** Jaime Taha Tijerina  
University Blvd. Brownsville

**12h00 - 01-006 Anchoring lithium polysulfides in VS4 nanowires with defects**

Presenter: Rafael Oliveira Figueiredo

(1) PPGEMN;

Figueiredo, R.O.(1);

*12h50 as 14h20 – Lunch*



*Romm. 2 - João Calvino*

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**15h20 - 16h00 - "Fatigue testing in different materials under VHCF conditions"**

**keynote:** Prof. Luís Reis

Instituto Superior Técnico, IST

**16h00 - 19-001 Graphene and Derivatives as Reinforcements in Biodegradable Polymer Matrices: Moving Toward Eco-Friendly High-Performance Materials**

Presenter: Guilhermino José Macêdo Fechine

(1) UPM;

Fechine, G.J.M.(1); Siqueira, D.D.(1);

**16h25 - 02-007 Photonic chemo and biosensing at Mackenzie**

Presenter: Christiano Jose Santiago De Matos

(1) Mackenzie;

De Matos, C.J.S.(1);

**16h50 - 17h20 - APERAM ABINOX - Introdução aos aços inoxidáveis**

**Keynote:** Tiago da Silva Lima

APERAM ABINOX

*17h20 - 18h20 - poster session 2 Covered Court*

*18h20 - 18h40 Coffe Break - Covered Court*

18<sup>th</sup> November 2025

*09h00 - 10h00 - poster session 3 Covered Court*

*10h00 - 10h20 Coffe Break - Covered Court*

*Romm. 1 Mackgraphe*

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**11h20 - 12h00 - Screen and 3D-printed electrodes: fabrication, modifications, and biosensing applications**

**keynote:** Prof. Dr. Fernando Henrique Cincotto

Instituto de Química, UFRJ

**12h00 - 22-004 Ternary NiFeCo-glycerolate catalysts: rational design for electrochemical applications**

Presenter: Irlan Dos Santos Lima

(1) IQ-USP; (2) MackGraphe;

Lima, I.S.(1); Gonçalves, J.M.(2); Oliveira, T.G.(1); Choquehuanca-Azaña, A.(1); Torres, S.E.(1); Otto, .(1); Oliveira, G.J.(1); Silva, M.O.(1); Agnes, L.(1); Verlangieri, I.;

**12h25 - 07-010 In Situ and Size-Controlled Growth of Metal Oxide Nanoparticles on Laser-Induced Graphene for Electrochemical L-Cysteine Detection**

Presenter: Gustavo Miguel Sousa

(1) UPM;

Sousa, G.M.(1); Pereira, K.C.R.(1); Garnica, D.F.(1); Dias, M.S.(1); Maroneze, C.M.(1); Silva, C.C.C.(1);

*12h50 as 14h20 – Lunch*



*Romm. 1 Mackgraphe*

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**14h20 - 15h00 - Opportunities for batteries in Brazil**

**keynote:** Prof. Dr. Hudson Zanin  
Universidade de Campinas, Unicamp

**15h00 - 04-003 Synthesis of polymer electrolytes improved by the addition of KNbO<sub>3</sub> for use in rechargeable lithium-ion batteries**

Presenter: Antero Ricardo Santos Neto  
(1) UFVJM; (2) UFSCar;  
Neto, A.S.(1); Dos Santos, W.S.(1); Rodriguez, M.(1); Nogueira, F.G.E.(2); Pereira, M.C.(1); Dos Santos, J.C.(1); De Souza, R.R.(1);

**15h25 - 12-006 NaNi<sub>1-x-y</sub>FexMnyO<sub>2</sub> cathode materials derived from NiFeMn-containing coordination compounds for sodium-ion batteries**

Presenter: Lady Vanessa Quispe Garrido  
(1) UNI; (2) IQ-USP; (3) USP; (4) MackGraphe;  
Garrido, L.V.Q.(1); Martins, V.L.(2); Estrada Lopez, W.F.(1); Gonçalves, J.M.(4); Agnes, L.(3); Oliveira, G.J.(3);

**15h50 - 16h20 - Caracterização de Polímeros por DSC - Análises Térmicas**

**Keynote:** Francisco S. Regina - Sales Manager Quimico  
NETZSCH

**16h45 - 17h10 Coffe Break - Covered Court**

**17h10 - Closing Ceremony - Room mack Graphe**

18<sup>th</sup> November 2025

**09h00 - 10h00 - poster session 3 Covered Court**

**10h00 - 10h20 Coffe Break - Covered Court**

*Romm. 2 - João Calvino*

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**11h20 - 12h00 - Persistent Luminescence in Glass Composites: Challenges and Opportunities**

**keynote:** Leonnam Gotardo Merízio  
Institute of Chemistry of São Carlos, IQSC-USP

**12h00 - 20-007 Influence of Rare-Earth dopant concentration on the luminescent properties of Disilicate thin films Synthesized via Microwave-Assisted Solid-State Route**

Presenter: João Pedro Carbone Macieira  
(1) UPM; (2) ANALÍTICA;  
Macieira, J.P.C.(1); Motonaga, S.(1); Ferreira, J.L.S.(2); Bonturim, E.(1);

**12h25 - 16-001 Rare-earth doped BSCF synthesis and thin film preparation**

Presenter: Jorge Lucas Santille Ferreira  
(1) UPM;  
Ferreira, J.L.S.(1); Bonturim, E.(1);

**12h50 as 14h20 – Lunch**



**14h20 - 15h00 - Synchrotron light applied to the study of luminescent materials**

**keynote:** Verônica de Carvalho Teixeira

CNPEM - National Center for Research in Energy and Materials

**15h00 - 20-003 Optimization of thermal synthesis parameters for enhanced luminescence in rare-earth-doped disilicates**

Presenter: Sabrina Aya Motonaga

(1) UPM;

Motonaga, S.(1); Macieira, J.P.C.(1); Bonturim, E.(1);

**15h25 - 20-005 Synthesis of BiFeO<sub>3</sub> and Thin Film Deposition by Spin Coating: Parameter Optimization and Characterization**

Presenter: Karoline Tiemi Sakai

(1) UPM;

Sakai, K.T.(1); Andrade, E.P.(1); Bonturim, E.(1);

**15h50 - 20-004 Preparation of Bismuth Ferrite Ceramic Pellets: Synthesis, Sintering and Piezoelectric Properties**

Presenter: Enzo Prevideli De Andrade

(1) UPM;

Andrade, E.P.(1); Sakai, K.T.(1); Bonturim, E.(1);

**16h15 - 16h45 - Raman & Nanoraman/ nanophotoluminescence: multimodal co-localized spectroscopy for physico-chemical characterization of samples**

**Keynote:** Filipe Cabral

HORIBA

**16h45 - 17h10 Coffee Break - Covered Court**

**Room Mackgraphie**

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**17h10 - Closing Ceremony**



## Poster Program

### Materials and Surface Science

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17/11/2025 17h20 - *Confirmado*

**01-002 Evidence of Weak Localization and Weak Antilocalization in Few-flake Reduced Graphene Oxide Films**

Apresentador: Marcella Fernanda Damaceno Neves

(1) CNPEM;

Neves, M.F.D.(1); Okazaki, A.K.(1); Braunger, M.L.(1); De Oliveira, R.F.(1);

17/11/2025 17h20

**01-003 Electronic Structure and Band Alignment in Thiophene-Based Polymer/ReS<sub>2</sub> van der Waals Heterojunctions: A DFT Study.**

Apresentador: Jorge Arce-Molina

(1) UPM; (2) TIA; (3) UNILA; (4) UNESP;

Arce-Molina, J.(1); Matusalem, F.(2); De Carvalho, L.C.(3); Reily Rocha, A.(4); Garcia-Basabe, Y.(3); Gonzalez Larrude, D.(1);

17/11/2025 09h00 - *Confirmado*

**01-005 Liquid-phase exfoliation of molybdenum disulfide (MoS<sub>2</sub>) using a 3D-printed high shear mixing setup**

Apresentador: Nicolli De Freitas

(1) CNPEM;

De Freitas, N.(1); Silva, G.O.(1); Braunger, M.L.(1); De Oliveira, R.F.(1);

17/11/2025 17h20 - *Confirmado*

**01-007 Evaluation of Wear and Corrosion Resistance of Plasma-Sprayed Ceramic Coatings**

Apresentador: Lucas Henrique Silva Barros

(1) UPM;

Barros, L.H.S.(1);

17/11/2025 09h00

**01-008 From Minerals to Nanodevices: Biotite as a Natural Source of Two-Dimensional Functional Materials**

Apresentador: Claudia Aline Da Silva Marques Do Nascimento

(1) UFJF;

Nascimento, C.A.S.M.(1); Da Conceição Ludwig, Z.M.(1); De Araújo, J.H.(1); Ludwig, W.(1);

17/11/2025 17h20 - *Confirmado*

**01-010 Ionic Liquid-Functionalized Silica: An Advanced Approach for PFAS Removal from Aqueous Media**

Apresentador: Isadora Lopes Rodrigues

(1) UPM;

Rodrigues, I.L.(1); Vello, T.P.(1); Borges, M.M.(1); E Silva, C.C.C.(1); Simas, R.C.(1); Maroneze, C.M.(1);

17/11/2025 17h20

**01-011 Analysis of the Corrosion Resistance of Ferritic Stainless Steels Treated by Low-Temperature Plasma Nitriding**

Apresentador: Edgar Djalma Campos Carneiro Dammann

(1) UPM; (2) IFSP; (3) UPMackenzie e ipen; (4) UDESC; (5) IFSC;

Dammann, E.D.C.C.(1); Vatauvuk, J.(2); Lima, C.R.C.(1); Couto, A.A.(3); Recco, A.A.C.(4); Stryhalski, J.(5); Fontana, L.C.(4); Massi, M.(1);



## Biosensors, Biomaterials, and Soft Materials

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18/11/2025 09h00

### 02-001 Ovine Bone Regeneration Induced by Granular Ceramic Hydroxyapatite: A Structural and Multiscale Evaluation

Apresentador: Gisele Maria Leite Dalmonico

(1) CBPF;

Dalmonico, G.M.L.(1); Rossi, A.L.(1);

18/11/2025 09h00

### 02-004 Synthesis of bioactive sodium and potassium niobates (knn) by solid state reaction

Apresentador: Suzana Noronha Ferreira Ribeiro

(1) UPM; (2) IPqM; (3) IME;

Noronha Ferreira Ribeiro, S.(1); Eltom, A.E.(2); Prado Da Silva, M.H.(3);

## Carbon Nanostructures and Nano composites

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17/11/2025 09h00 - Confirmado

### 03-002 Thermoplastic Polyurethane Nanocomposites with Carbon Nanostructures: Relationship of Morphology with Thermomechanical and Electrical Properties

Apresentador: Rafael Vieira Maidana

(1) UPM; (2) Mackenzie; (3) MACKGRAPHE; (4) UFCG;

Maidana, R.V.(1); Storte, B.B.(1); Braun, J.A.(2); Siqueira, D.D.(3); Aramayo, M.F.(1); Amorim, P.A.(1); Silva Sousa, F.R.(4); Bonfim, R.P.(4); Mélo, T.J.A.(4); De Andrade, R.E.(1);

18/11/2025 09h00 - Confirmado

### 03-003 synthesis and characterization pf graphene based iron oxide composites

Apresentador: Saira Iftikhar

(1) UPM;

Iftikhar, S.(1);

17/11/2025 09h00

### 03-004 Arsenic removal from aqueous solutions using a MIL-101(Fe)-decorated biochar composite

Apresentador: Maryam Shirinkar

(1) UNESP;

Shirinkar, M.(1); Cipriano Rangel, E.(1); Henrique Rosa, .(1);

17/11/2025 09h00 - Confirmado

### 03-005 Synthesis of Reduced Graphene Oxide via Mechanical Pre-Exfoliation of Graphite

Apresentador: Renato Moreira Teixeira Junior

(1) CONECTHUS; (2) UEA;

Teixeira Junior, R.M.(1); Da Silva, I.L.(1); Da Cunha, M.R.(1); Do Nascimento, N.R.(1); Rocha, G.S.(2);

17/11/2025 09h00

### 03-006 Polymeric nanocomposites of thermoplastic polyurethane with reduced graphene oxide functionalized with magnetic nanoparticles

Apresentador: Bruno Basile Storte

(1) UPM; (2) MACKGRAPHE;

Storte, B.B.(1); Maidana, R.V.(1); Aramayo, M.A.F.(1); Siqueira, D.D.(2); Andrade, R.J.E.(1);

17/11/2025 17h20 - Confirmado

### 03-007 Influence of Synthesis Routes on the Electrical Properties of Graphene: Chemical, Mechanical, Liquid-Phase Exfoliation and CVD Deposition

Apresentador: Gabriela Silva Da Rocha

(1) CONECTHUS;

Rocha, G.S.(1); Da Silva, I.L.(1); Da Cunha, M.R.(1); Do Nascimento, N.R.(1); Teixeira Junior, R.M.(1);



18/11/2025 09h00 - *Confirmado*

**03-008 Development of Hybrid Microfibers Based on Graphene Derivatives and Multi Walled Carbon Nanotubes Using Microfluidic Devices.**

Apresentador: Marcos Rocha Silva

(1) UPM;

Silva, M.R.(1); Avancini, M.(1); Dias, M.S.(1); Maroneze, C.M.(1); Silva, C.C.(1);

17/11/2025 17h20 - *Confirmado*

**03-009 Effect of Graphene Addition on Interfacial and Mechanical Properties of SAC Solder on CVD Graphene Coated Copper**

Apresentador: Gabriela Silva Da Rocha

(1) Conecthus; (2) UEA;

Rocha, G.S.(1); Teixeira Junior, R.M.; Da Cunha, M.R.; Do Nascimento, N.R.; Rocha De Carvalho Pádua, G.F.; De Macêdo Neto, J.C.(2);

17/11/2025 09h00 - *Confirmado*

**03-011 Structure- Interface Relationships in Hybrid Epoxy Nanocomposites: From Interfacial Engineering to Thermomechanical Performance**

17/11/2025 17h20 - *Confirmado*

**03-013 Multifuncional hybrid microfibers of h-BN/MoS<sub>2</sub> pullulan produced by force-spinning method with potential use in biomedical applications**

Apresentador: Hélio Ribeiro

(1) UPM; (2) UTRGV; (3) UFMG; (4) RICE;

Ribeiro, H.(1); Tijerina, J.T.(2); Silva, B.M.O.(1); Andrade, R.J.E.(1); Pinto, G.M.(1); Fachine, G.J.(1); Andrade, L.M.(3); Lozano, K.(4);

17/11/2025 17h20 - *Confirmado*

**03-014 Mechanical and Thermal Properties of Advanced Polymer Nanocomposites with Carbon Nanotubes and Nanosilica**

Apresentador: Bruno Milton Oliveira Da Silva

(1) UPM; (2) UTRGV;

Silva, B.M.O.(1); Andrade, R.J.E.(1); Barbosa, J.M.(1); Taha-Tijerina, J.J.(2); Ribeiro, H.(1);

18/11/2025 09h00 - *Confirmado*

**03-015 Epoxy Resins Reinforced with Graphene Nanofillers: An Approach to Advanced Composites in the Aerospace Industry**

Apresentador: Marcelo Silva Oliveira

(1) Mackgraph; (2) Instituto Presbiteriano Mackenzie;

Siqueira, D.D.(1); Oliveira, M.S.(2);

## Ceramics, Polymers and Composite Materials

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17/11/2025 17h20

**04-001 Synthesis of Pure and Copper-Doped Zinc Oxide Nanoparticles via the Pechini Method**

Apresentador: Yasmim Paixão Martins

(1) IF Sudeste MG;

De Oliveira, M.J.C.(1); Martins, Y.P.(1); Costa, I.O.(1);

18/11/2025 09h00

**04-002 Use of aged pseudoboehmite for metformin release**

Apresentador: Geovanna Dos Passos Balieiro

(1) UPM;

Balieiro, G.P.(1); Anastacio, M.N.(1); Munhoz Junior, A.H.(1);

17/11/2025 17h20 - *Confirmado*

**04-004 Analysis of Semiconductor Devices using Infrared and Raman Spectroscopies**

Apresentador: Jéssica Fernanda Coelho

(1) Jasco do Brasil;

Coelho, J.F.(1);



17/11/2025 17h20

**04-006 Rheological properties and hydration of cement modified with pectin**

Apresentador: André Alexandre Alves Da Silva

(1) IQ/UNESP; (2) UNESP;

Da Silva, A.A.A.(1); Dos Santos, C.C.(2); Pulcinelli, S.H.(1); Santilli, C.V.(1);

17/11/2025 09h00

**04-008 The use of nanotechnology for enhancing concrete watertightness**

Apresentador: Daniel Yaezu Tiba

(1) UPM;

Beltrame, F.R.(1); Botelho, S.S.(1); Tiba, D.Y.(1); Teixeira, J.D.(1); Da Silva, P.B.(1);

### Computational Nanomaterials Science

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18/11/2025 09h00

**05-001 Chiral Ni(OH)<sub>2</sub>- Glutathione Nanoparticles as Biofunctional Materials: Computational Insights into Netrin-G1 Recognition and Neural Repair Mechanisms**

Apresentador: Julia Bolli

(1) UFSCar;

Bolli, J.(1); Ierich, J.C.M.(1); De Moura, A.F.(1);

### Plasma Technology

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17/11/2025 09h00

**06-003 Surface behavior of Ti-6Al-4V alloy with metallic and composite coatings applied by plasma thermal spraying**

Apresentador: Suzana Noronha Ferreira Ribeiro

(1) UPM; (2) UPMackenzie e ipen;

Noronha Ferreira Ribeiro, S.(1); Massi, M.(1); Couto, A.A.(2); Lima, C.R.C.(1); Almeida, G.F.C.(1);

17/11/2025 17h20

**06-004 Study of the Adhesion of TiCN Thin Films Deposited on 316L Alloy by Magnetron Sputtering**

Apresentador: Joao Pedro Prates Camargo

(1) UPM;

Camargo, J.P.P.(1);

### Sensors Development Nanomaterials

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17/11/2025 17h20 - *Confirmado*

**07-001 Graphene Quantum Dots Functionalized with Thiourea: Synthesis, Characterization, and Application as a Fluorescent Sensor for Strychnine**

Apresentador: Evelyn Leal De Carvalho

(1) PUC-RIO;

Leal De Carvalho, E.(1); Queiroz Aucelio, R.(1); Pedrozo Peñafiel, M.J.(1);

17/11/2025 17h20 - *Confirmado*

**07-004 Development of optical waveguides for scattering microscopy sensing**

Apresentador: Kevin Stefan Boszko Martins

(1) UPM; (2) IPEN;

Martins, K.S.B.(1); De Matos, C.J.S.(1); Fonsaca, J.E.S.(2);



18/11/2025 09h00

**07-006 Visible light enabled photocapacitive charging and glucose sensing properties of hydrothermally synthesized WO<sub>3</sub>/CdS nanocomposites**

Apresentador: Vishakha Zimba

(1) IIT ISM;

Zimba, V.(1); Nayak, J.(1);

17/11/2025 09h00 - *Confirmado*

**07-008 Strategies for improved chemoresistive gas sensors: MOF-derived and nanostructured metal oxide for microbial volatile organic compounds detection**

Apresentador: Diogo Paschoalini Volanti

(1) Unesp; (2) University of Hamburg; (3) LNNano;

Volanti, D.P.(1); Vioto, G.(1); Zito, C.(2); Dos Santos, G.(1); Sá, B.(1); Theodoro, R.(1); Gropelo, H.(1); Lourenço, V.H.(1); Paciencia, F.(1); Perfecto, T.(3);

17/11/2025 09h00 - *Confirmado*

**07-009 Synthesis and Application of Carbon Nanotube/dendrimer based platform for detection of Sodium Azida**

Apresentador: Danubia Santiago Martins

(1) UNESP; (2) IF Goiano - Campus Rio Verde;

Martins, D.S.(1); Moura, V.(2); Genova, L.M.(1); Soto, P.C.(1); Marinho De Souza, P.R.(1); Do Carmo, D.R.(1);

17/11/2025 17h20 - *Confirmado*

**07-011 Applications of Semiconductor Quantum Dots (CdS/CdSe) for Ionizing Radiation Detection: Systematic Review of Performance and Technological Challenges**

Apresentador: Anna Luisa Aguiar Silva

(1) Instituto de Ciências Exatas-ICE;

Barbosa, N.A.(1); Silva, A.L.A.(1); Ludwig, Z.M.C.(1); Moreto, C.B.(1); Menon, L.(1); De Araujo, J.H.(1); Ludwig, V.E.(1); Narciso Gabriel, R.D.(1);

17/11/2025 09h00 - *Confirmado*

**07-012 Buckyball Nanoarchitectures for Sensitive Detection of Multiple Pesticides in Environmental Samples**

Apresentador: Octavio Pereira Lopes De Souza

(1) UPM;

De Souza, O.P.L.(1); Abreu, T.M.S.(1); Tiba, D.Y.(1); Astolfi Ferreira, J.H.(1); Lieb, L.C.(1); Canevari, T.C.(1);

## Metallurgy, Corrosion and Alloys

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17/11/2025 09h00

**08-002 Effect of Post-Weld Heat Treatment on the Mechanical Behavior and Microstructure of ASTM A572 Gr50 Steel Welded by the SAW Process**

Apresentador: Matheus José C De Oliveira

(1) IF Sudeste MG;

De Oliveira, M.J.(1); Brum, K.A.(1);

17/11/2025 17h20 - *Confirmado*

**08-003 Effect of Gas Metal Arc Welding (GMAW) parameters on joining of UNS C35000 brass-lead alloy sheets**

Apresentador: Gualtier Andersen Marques

(1) UFABC; (2) UPM; (3) UNIP; (4) FSA; (5) UNIABC; (6) UniB;

Amorese, R.A.(1); Do Nascimento, P.T.(2); Trindade, W.G.(3); Padovezzi, R.O.(4); Marques, G.A.(4); Pinto, E.P.G.(5); Silva, M.C.(6); De Andrade, G.O.(1); Damasio, T.S.(1); Filho, A.A.M.(1);

17/11/2025 17h20

**08-004 Development of iron aluminides coating produced by laser cladding for the protection of anodic pins in Soderberg electrolytic cell**

Apresentador: Gisele Fabiane Costa Almeida

(1) UPM; (2) CBA; (3) HRC; (4) IPEN-CNEN/SP; (5) IDMEC; (6) UPMackenzie e ipen;

Gomes, A.F.(1); Santos, H.C.(2); Seno, R.(2); Francisco, A.(3); Lima, N.B.(4); Almeida, G.F.C.(1); Reis, L.(5); Massi, M.(1); Couto, A.A.(6);

17/11/2025 17h20

**08-008 Study of the Microstructure and Mechanical Behavior at Elevated Temperatures of Silicon Aluminum Bronze with Zirconium Addition**

Apresentador: Fernanda Novaes Santos

(1) MPU; (2) UPM; (3) TM; (4) IFSP;

Santos, F.N.(1); Couto, A.A.(2); Almeida, G.F.C.(1); Borges, D.A.S.(1); Santos, V.T.(3); Nascimento, P.T.(3); Silva, M.R.(3); Santos, G.A.(4);

18/11/2025 09h00 - *Confirmado*

**08-009 Correlation between thermal variables of solidification and microstructure of the manganese aluminum bronze alloy CuMn11Al8Fe3Ni3 with niobium microaddition**

Apresentador: Paulo Henrique Tedardi Do Nascimento

(1) UPM; (2) TM; (3) IFSP / IPEN; (4) IFSP; (5) UFABC; (6) UPMackenzie e ipen;

Nascimento, P.H.T.(1); Dos Santos, V.T.(2); Da Silva, M.R.(2); Lobo, F.G.(2); Santos, F.N.(1); Nascimento, M.S.(3); Teram, R.(4); Dos Santos, G.A.(4); Filho, A.A.M.(5); Couto, A.A.(6);

18/11/2025 09h00 - *Confirmado*

**08-011 Effects of Solidification Thermal Variables on the Microstructure and Hardness of the Silicon Aluminum Bronze Alloy CuAl6Si2**

Apresentador: Raphael Oliveira Padovezzi

(1) UPM; (2) UFABC; (3) TM; (4) IFSP / IPEN; (5) IFSP; (6) UPMackenzie e ipen;

Nascimento, P.H.T.(1); Padovezzi, R.O.(2); Santos, V.T.(3); Silva, M.R.(3); Santos, F.N.(1); Nascimento, M.S.(4); Teram, R.(5); Dos Santos, G.A.(5); Couto, A.A.(6); Filho, A.A.M.(2);

## Ceramic, Composite and Coating Materials

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17/11/2025 09h00 - *Confirmado*

**09-001 Surface properties and porosity of hydrophobized cement specimens**

Apresentador: Pedro Giovanni Fernando Sellan

(1) IQ/UNESP;

Sellan, P.G.F.(1); Dos Santos, C.C.(1); Braz, Á.G.(1); Pulcinelli, S.H.(1); Santilli, C.V.(1);

17/11/2025 09h00 - *Confirmado*

**09-002 Synthesis, Characterization, and Comparative Analysis of Pure Silica and Al/Ca-Modified Sol-Gel Glasses**

Apresentador: Anna Luisa Aguiar Silva

(1) UFJF; (2) UFSJ;

Silva, A.L.A.(1); Ludwig, Z.M.C.(1); Izumi, C.M.S.(1); Schiavon, M.A.(2); Gabriel, R.D.N.(1); Menon, L.(1); Dias, K.A.B.(1);

18/11/2025 09h00

**09-003 Diatomite- chitosan interaction through surface modifications for absorbent materials**

Apresentador: Maria Antonia Rodrigues De Paulo

(1) UFSCar;

Paulo, M.A.R.(1); Camargo, E.R.(1);

## Sustainable and Eco-Friendly (Nano)materials

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17/11/2025 09h00

**10-002 Use of bamboo powder to obtain low density polyethylene (LDPE) composite**

Apresentador: Renato Meneghetti Peres

(1) UPM; (2) Mackenzie;

Peres, R.M.(1); Santos, L.R.M.(1); Barbosa, J.M.(2); Duro, M.A.S.(1); Hortencio Munhoz Jr, A.; Canevari, T.C.(1);



17/11/2025 17h20

**10-003 Characterization of thermal and thermomechanical properties of low-density polyethylene (LDPE)-bamboo powder composites**

Apresentador: Renato Meneghetti Peres

(1) UPM; (2) Mackenzie;

Peres, R.M.(1); Santos, L.R.M.(1); Barbosa, J.M.(2); Hortencio Munhoz Jr, A.;

18/11/2025 09h00

**10-004 Influence of PPy Incorporation on the Rheological and Structural Properties of Cellulose Hydrogels**

Apresentador: Isabela Disigant

(1) UPM; (2) (FCT-NOVA); (3) AlmaScience;

Disigant, I.(1); Amorim, P.(1); Fernandes, N.M.(1); Ferreira, G.(2); Jana, S.(2); Goswami, S.(3); Nandy, S.(2);

Andrade, R.E.(1);

17/11/2025 17h20 - Confirmado

**10-006 Production of modified magnetic nanocatalysts for deep desulfurization of real fossil fuels**

Apresentador: Jaciara Maria Dos Santos

(1) UFRJ;

Santos, J.M.(1); Junior, F.G.(1); Werneck, M.M.(1); Allil, R.C.(1);

17/11/2025 09h00 - Confirmado

**10-007 Antimicrobial activity of green-synthesized silver nanoparticles against multidrug-resistant bacterial strains**

Apresentador: Adriana De Souza Rodrigues

(1) FEMPAR; (2) IPEN; (3) UNIFESP; (4) UPM;

Rodrigues, A.S.(1); Batista, J.S.(2); Minarini, L.A.R.(3); Ferreira, A.H.(4); Lugao, A.B.(2);

17/11/2025 17h20

**10-009 Eco-friendly castor oil-based pu coatings reinforced with ultralow graphene oxide content**

Apresentador: Julie Anne Braun

(1) UPM; (2) Purcom;

Braun, J.A.(1); Fonseca, L.D.(1); Siqueira, D.D.(1); Astone, P.(1); Graci, M.(1); Parreira, G.(2); Maroneze, C.M.(1);

Andrade, R.J.E.(1);

17/11/2025 09h00 - Confirmado

**10-010 Emerging Trends in Sustainable Paints and Coatings: Preliminary Scientometric Analysis (2015-2025)**

Apresentador: Michel Rodrigues Andrade

(1) NUTEC; (2) UFC;

Rocha, J.S.(1); Andrade, M.R.(2); De Sousa, A.P.(2); Fechine, P.B.A.(2);

## Energy and Batteries Materials Applications

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17/11/2025 17h20 - Confirmado

**12-001 Enhancing Lithium-Ion battery anode: the role of fluoride and chloride doping in Iron Oxide nanostructures**

Apresentador: Cátia Alexandra Podence Alves

(1) POLI-USP; (2) USP;

Podence Alves, C.A.(1); Martins, V.L.(2); Gouvêa, D.(2); Gualdron Plata, A.P.(2);

17/11/2025 17h20

**12-003 Rational Design of Nickel Glycerolates: Influence of Glycerol Concentration on Coordination Compound Size and Morphology**

Apresentador: Pedro Luís Wassilewsky Caetano

(1) Mackenzie; (2) MackGraph;

Wassilewsky Caetano, P.(1); Gonçalves, J.M.(2);



## Biomaterials and Tissue Engineering

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18/11/2025 09h00

### 13-001 Mechanical Behavior of Porous Ti6Al4V Processed by Spherical Powder Thermal Spraying by Plasma

Apresentador: Licia Maria Darezzo Maestrelli

(1) UPM;

Maestrelli, L.M.D.(1);

## Graphene Technology and Applications

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17/11/2025 17h20 - Confirmado

### 14-001 Control of Graphene Oxide Reduction and its Impact on the Operation of Electrolytic Transistors

Apresentador: Alessandro De Souza Mourato

(1) UNESP; (2) CNPEM;

Mourato, A.S.(1); De Oliveira, R.F.(2); Marangoni, V.S.(2);

17/11/2025 09h00

### 14-003 Electrolyte-Gated Transistor for Potassium Sensing: A Supramolecular Chemistry Approach with Reduced Graphene Oxide

Apresentador: Gabrielle Coelho Lelis

(1) CNPEM;

Lelis, G.C.(1); De Oliveira, R.F.(1);

17/11/2025 17h20 - Confirmado

### 14-004 Characterization of MIP-GO Composite for Fluoroquinolone Analysis

Apresentador: Gabriel Gosling Stollar

(1) UPM;

Stollar, G.G.(1); Silva, M.R.D.(1); Borges, M.M.(1); Oliveira, W.V.(1); Silva, C.C.C.(1); Maroneze, C.M.(1); Simas, R.(1);

17/11/2025 09h00 - Confirmado

### 14-005 Graphene Oxide Aqueous Dispersions: Structural and Rheological Dependence on Precursors and Lateral Size

Apresentador: Gabriel Krug De Oliveira

(1) MackGraphe; (2) UPM;

Oliveira, G.K.(1); Aramayo, M.A.F.(1); Fernandes, N.M.M.(1); Dias, M.S.(1); Amorim, P.A.(1); Maroneze, C.M.(2); Silva, C.C.C.(2); Andrade, R.J.E.(2);

## Hybrid Materials

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17/11/2025 17h20 - Confirmado

### 15-001 Development of filter membranes using graphene oxide and zirconium oxide hybrid nanostructures

Apresentador: Laura Chaluleu Lieb

(1) UPM; (2) NA / UPM;

Lieb, L.C.(1); Tiba, D.Y.(1); Astolfi Ferreira, J.H.(1); Abreu, T.M.S.(1); De Souza, O.P.L.(1); Belino, W.V.L.(2); Canevari, T.C.(1);

17/11/2025 09h00 - Confirmado

### 15-002 Development of hybrid ruthenium and carbon quantum dots nanostructure for use in filter membrane

Apresentador: Taís Martins Santos Abreu

(1) UPM; (2) LABNAHM; (3) NA / UPM;

Abreu, T.M.S.(1); Lieb, L.C.(1); Tiba, D.Y.(1); Ferreira, J.A.(1); De Souza, O.P.L.(2); Belino, W.V.L.(3); Canevari, T.C.(1);



## Green Materials, Environment and Sustainable

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17/11/2025 09h00

### 17-001 Synthesis and characterization of carbon quantum dots for detection of microplastics in aqueous media

Apresentador: Ellen Alencar

(1) UFRGS;

Alencar, E.(1); Alves, A.(1);

17/11/2025 09h00

### 17-002 Comparison of the Thermal Properties of Bamboo Species *Guadua sarcocarpa* and *Bambusa vulgaris* for Use in Composite Production

Apresentador: Renato Meneghetti Peres

(1) UPM; (2) MACKENZIE;

Peres, R.M.(1); Hortencio Munhoz Jr, A.(2); Barbosa, J.M.; Duro, M.A.S.(1); Concílio, R.(1);

17/11/2025 09h00 - Confirmado

### 17-003 Development of pracaxi oil-loaded chitosan/TPP particles incorporated in serum to cosmetic use

Apresentador: Gabriela Macarini Bueno

(1) UPM;

Bueno, G.M.(1); Queiroz, L.O.(1); Cefali, L.C.(1);

17/11/2025 09h00 - Confirmado

### 17-004 Synthesis of N-doped activated hydrochar from sugarcane bagasse: carachterization and CO2 capture application

Apresentador: Otávio Alves Mattos

(1) UNESP; (2) UFF; (3) UEL;

Mattos, O.A.(1); Hortencio, J.S.(2); Ferreira, O.P.(3); Moreira, A.B.(1); Ronconi, C.M.(2); Bisinoti, M.C.(1);

18/11/2025 09h00 - Confirmado

### 17-005 Graphene Derivatives and Manganese Oxide Obtained from Disposed Resources

Apresentador: Daniel Yaezu Tiba

(1) UPM; (2) NA / UPM;

Tiba, D.Y.(1); Astolfi Ferreira, J.H.(1); Lieb, L.C.(1); Souza, O.P.L.(1); Abreu, T.M.S.(1); Belino, W.V.L.(2); Canevari, T.C.(1);

17/11/2025 09h00

### 17-006 Development of filtering concrete based on hybrid cellulose nanostructures

Apresentador: Thiago Cruz Canevari

(1) UPM;

Beltrame, F.R.(1); Belino, W.V.L.(1); Tiba, D.Y.(1); Dos Santos, J.A.(1); Canevari, T.C.(1);

17/11/2025 17h20

### 17-007 Green synthesis of CuO/ZnO nanoparticles using *H. courbaril* L. leaf extract for anti-bacterial activity

Apresentador: Jhaemely Gabrielly Vieira Da Silva

(1) UFPI; (2) UPM;

Silva, J.G.V.(1); Oliveira, T.P.(1); Silva, T.P.S.(1); Costa, P.M.(1); Muniz, E.C.(1); Andrade, R.J.E.(2); Santos, F.E.(1);

## Polymeric Materials and Polymer Science

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17/11/2025 09h00

### 19-002 Optimization parameters via plackett-burman of a nanosystem adsorbent of biodiesel acylglycerides

Apresentador: Thiely Joana Antero De Lima

(1) UFRJ;

Cunha, S.R.S.(1); Lima, T.J.A.(1); De Souza Jr, F.G.(1);



17/11/2025 17h20

**19-003 The relationship between the structure and the thermo-rheological behavior of nanostructured Xanthan Gum with Graphene Oxide**

Apresentador: Ricardo Jorge Espanhol Andrade

(1) UPM; (2) PUC-Rio; (3) MackGraphe;

Andrade, R.J.E.(1); Nathália Maria Moraes Fernandes, N.N.M.M.F.(1); Oliveira, G.K.(1); Moraes, L.(2); Dias, M.(3); Junior, E.(1); Ribeiro, H.(1); Maroneze, C.(1); Naccache, M.(2);

**Optics Photonics and Electronic Materials**

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17/11/2025 09h00

**20-001 All-Fiber Optofluidic Device for Luminescence-Based Refractometric Sensing**

Apresentador: Eder Mota Santos

(1) UMP; (2) PUC;

Santos, E.M.(1); Araújo, R.S.(1); Margulis, W.(2); Matos, C.S.(1);

18/11/2025 09h00 - *Confirmado*

**20-002 Thickness-Dependent Second Harmonic Generation in Mechanically Exfoliated 3R-Niobium Disulfide: An Experimental and Theoretical Study**

Apresentador: Raiane Sodré Araújo

(1) MPU; (2) PSU;

Araújo, R.S.(1); Londono-Giraldo, D.F.(1); Nagaoka, D.(2); Rosa, H.(1); Bahamon, D.(1); De Matos, C.(1);

17/11/2025 17h20 - *Confirmado*

**20-008 Advancing Multiferroic Materials for Next-Generation of Functional Devices**

Apresentador: Everton Bonturim

(1) UPM;

Bonturim, E.(1);

18/11/2025 09h00

**20-009 Tuning the Functional Properties of BiFeO<sub>3</sub> through doping engineering with La and Nd ions**

Apresentador: Israel Dimas Marques

(1) TSI; (2) UPM;

Marques, I.D.(1); Bonturim, E.(2);

17/11/2025 17h20 - *Confirmado*

**20-010 Enhanced light-matter coupling in hBN-encapsulated ws<sub>2</sub> multilayer structures**

Apresentador: Michel Rodrigues Andrade

(1) NUTEC; (2) UFC;

Rocha, J.S.(1); Andrade, M.R.(2); Da Costa, D.R.(2);

**Energy, Environment and Materials Technology**

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18/11/2025 09h00

**22-001 CuCo bimetallic nanoparticles in the confined space of mesoporous silica KIT-6 support for the catalytic removal of organic contaminants**

Apresentador: Shanmugaraj Krishnamoorthy

(1) UTA;

Krishnamoorthy, S.(1);

17/11/2025 09h00 - *Confirmado*

**22-002 Synthesis and Application of TiO<sub>2</sub> and Fe<sub>2</sub>O<sub>3</sub> for the Production of Green Ammonia**

Apresentador: André Bessa Da Franca Saliba

(1) USP; (2) FEI;

Saliba, A.B.F.(1); Alves, C.A.P.(1); Bernardes, A.A.(1); Teixeira, A.C.S.C.(1); Gouvêa, D.(1); Ramos, B.(2); Da Silva, A.L.(1);



17/11/2025 09h00 - *Confirmado*

**22-006 Ion Segregation in Doped TiO<sub>2</sub> Nanoxides: Structural and Electrochemical Effects for Energy Storage Applications**

Apresentador: Pedro Henrique Oliveira Ferreira Cruz

(1) Poli-USP;

Oliveira Ferreira Cruz, P.H.(1);

**Mass Spectrometry Applied Nanomaterials**

---

17/11/2025 09h00 - *Confirmado*

**23-002 Nylon Membranes Modified with Reduced Graphene Oxide Applied to Paper Spray Ionization Sources at Low Voltages**

Apresentador: Mariana Magalhães Borges

(1) UPM;

Borges, M.M.(1); Carvalho, C.P.(1); Simas, R.C.(1); Eberlin, M.N.(1);

**Functional Materials and Metals, Technology**

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18/11/2025 09h00 - *Confirmado*

**24-001 Microstructure and properties of AA3003 aluminum alloy in the continuous extrusion process**

Apresentador: Renan André Amorese

(1) UFABC; (2) UPM; (3) UNIP; (4) FSA; (5) UNIABC; (6) UniB;

Amorese, R.A.(1); Do Nascimento, P.T.(2); Trindade, W.G.(3); Padovezzi, R.O.(4); Marques, G.A.(4); Pinto, E.P.G.(5); Silva, M.C.(6); De Andrade, G.O.(1); Damasio, T.S.(1); Filho, A.A.M.(1);

17/11/2025 09h00 - *Confirmado*

**14-006 Valorization of Graphite from Northeastern Brazil: Transforming Semi-Arid Resources into Advanced Nanomaterials**

Apresentador: Janaína Sobreira Rocha

(1) UFC; (2) IFCE; (3) UECE; (4) UnB; (5) NUTEC;

Rocha, J.S.(5); Santos, L.(1); Ayala, A.P.(1); Silva, R.L.(1); Moura, T.A.(2); Farias, J.M.V.(3); Gonçalves, A.N.(4); Araújo, B.S.(1); Vasconcelos, F.W.C.(1);

17/11/2025 17h20 - *Confirmado*

**22-007 Kesterite-Doped ZnCl<sub>2</sub> Photoanodes: Sustainable Materials for Solar Conversion and Electrochemical Applications**

Apresentador: Janaína Sobreira Rocha

(1) UFC; (2) NUTEC;

Santana, J.P.(1); Rocha, J.S.(2); Nunes, V.F.(1); Lima, F.M.(1); Maia Júnior, P.F.(2); Freire, F.A.(1); Girão, F.L.(2);

18/11/2025 09h00 - *Confirmado*

**01-004 The Effects of Titanium Additions on the Structural and Mechanical Properties of Stainless Steel-Nitride Thin Films**

Apresentador: Faisal Alresheedi

(1) QU;

Alresheedi, F.(1);

17/11/2025 15h20 - *Confirmado*

**01-012 Comparison of the microstructure and mechanical properties of TiCN thin films deposited on Ti6Al4V alloy by Magnetron Sputtering.**

Apresentador: Bryan Miyahara Moraes Silva

(1) UPM;

Silva, B.M.M.(1); Gonçalves, R.P.(1); Couto, A.A.(1); Massi, M.(1);

17/11/2025 17h20 - *Confirmado*

**01-012 Comparison of the microstructure and mechanical properties of TiCN thin films deposited on Ti6Al4V alloy by Magnetron Sputtering.**

Apresentador: Bryan Miyahara Moraes Silva

(1) UPM;

Silva, B.M.M.(1); Gonçalves, R.P.(1); Couto, A.A.(1); Massi, M.(1);

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