

**XXII Conference of the
International Society for
Biological Calorimetry
México/El Palacio de Medicina
Program October- 2024**

Monday 28

9:30 Opening

P r o g r a m

**10:15 The Lavoisier Medal Conference
Ernesto Freire**

(Johns Hopkins Hospital. **USA**)
"Calorimetric Analysis of the Structural Stability of Monoclonal Antibodies"

11:00 Olivier Braissant

(University of Basel. **Swiss**)
"Phage therapy and isothermal microcalorimetry"

11:30 Daumantas Matulis

(Vilnius University, Institute of Biotechnology. **Lithuania**)
"Isothermal titration calorimetry in drug design. The precision of measurements and use of enthalpy"

12:00 COFFEE BREAK

12:15 Francisco Javier Sierra Valdez

(Instituto Tecnológico de Monterrey. **Mexico**)
"A Thermodynamic Perspective of Drug-mediated Lipid-Protein Interactions in the Inflammatory Mechanism"

12:45 Stoyan Milev

(Malvern Panalytical, **USA**)
"The Whole is Greater Than a Sum of Its Parts-the Use of Calorimetry in LNP-mRNA Characterization"

13:15 Palacio de Medicina Guided tour

14:00 Lunch Time

15:30 Daniel Alejandro Fernández

(Universidad Nacional Autónoma de México. **México**)
"Protein-ligand and water-mediated interactions shape affinity and selectivity in the Lysine Arginine Ornithine (LAO) binding protein"

16:00 José Manuel del Rio García

(Instituto Politécnico Nacional. **Mexico**)
"Determination of relative partial enthalpies of electrolytes by isothermal titration calorimetry"

16:30 COFFEE BREAK

16:45. Tonathiu Morales-Velázquez

(Instituto Politécnico Nacional. **Mexico**)

"Relative partial molar enthalpies of KCl, CaCO₃, Li₂SO₄ and LiNO₂ in aqueous solution by Isothermal Titration Calorimetry"

17:15 Mónica Corea

(Instituto Politécnico Nacional. **Mexico**)
"How graphical methods for micelle formation in isothermal titration calorimetry can introduce systematic errors in the determination of CMC and ΔH_{mic} "

18:00 Dinner Time

Tuesday 29

10:00 Thomas Maskow

(Helmholtz Centre for Environmental Research. **Germany**)
"Biotechnological Tapping of Natural and Technical Macromolecules: Thermodynamics and Calorimetry's Role".

10:30 Marko Popović

(University of Belgrade, **Serbia**)
"Biothermodynamic background of microbial interactions: Gibbs energy governs competition of microorganisms with other microorganisms and infection of multicellular organisms"

11:00 Małgorzata Maciążek-Jurczyk

(Medical University of Silesia, **Poland**)
"Calorimetric analysis of the interaction between new synthetic quinoline derivatives and human serum albumin"

11:30 COFFEE BREAK

STUDENTS TALKS

11:45 Václav Bočan

(Max Planck Institute of Molecular Cell Biology and Genetics. **Germany**)
"Thermodynamics of human cell growth"

12:00 Eliana Di Lodovico

(RPTU Landau / UFZ Leipzig, **Germany**)
"Beneath the soil surface:advancements with a macrocalorespirometer"

12:15 Charity Jennings

(Brigham Young University, **USA**)
"Using Differential Scanning Calorimetry to Quantify Multiple Milk Proteins"

12:30 Ibrahim Ramirez-Soto

(University of Waterloo. **Canada**)
"Role of skeletal muscle calcium handling in energy expenditure of rats with diet induced obesity"

13:00 Yannice Ricci

(CALNEOS, **France**)
"Ultimate DSC, a new tool for protein characterization"

13:15 Lunch time

15:00 Posters Session

17:00 Daniel Bravo

(AGROSAVIA. **Colombia**)

"Applying the isothermal calorimetry (IMC) into the exploration of bioremediation strategies for As and Cd immobilization in cacao, lettuce and rice crop systems in Colombia"

17:30 Jason Kenealy

(Brigham Young University. **USA**)
"Whey Protein Binding Interactions Using Differential Scanning Calorimetry and Isothermal Titration Calorimetry"

18:00. Dinner time

Wednesday 30

All day trip to the Teotihuacan Pyramids

12:15 Victor Velasco-Herrera

Institute of Geophysics, UNAM
"Sacred Heat: The New Fire Ceremony in the City of the Gods"

Thursday 31

10:00 Karim Fahmy

(Helmholtz-Zentrum Dresden-Rossendorf. **Germany**)
"Benchmarking microcalorimetric evaluations by the response of minimal cells to plasma membrane composition"

10:30 Alicia Ortega

(Universidad Nacional Autónoma de México. **Mexico**)
"Thermodynamic characterization of skeletal muscle SERCA, its catalytic cycle and effect of pharmacological inhibitors by differential scanning calorimetry"

11:00 Peter-Leon Hagedoorn

(TU Delft. **Netherlands**)
"Enzyme calorimetry of lignin conversion by laccases"

11:30 Kathrin Schmeisser

(Max Planck Institute of Molecular Cell Biology and Genetics, **Germany**)
"Quantifying metabolic states in development"

12:00 COFFEE BREAK

STUDENTS TALKS

12:30 Rafael López-Cruz

(Instituto Tecnológico de Tepic. **Mexico**)
"Isothermal microcalorimetry to characterize the behavior release and antifungal activity of the microencapsulated biocontrol agent *Yamadazyma mexicana*"

12:45 Tilman Linke

(Helmholtz-Centre for Environmental Research, **Germany**)
"Photo-calorespirometry (Photo-CR): A novel method to directly quantify thermodynamics of photosynthesis in real-time"

13:00 Geisi Rojas Bareto

(Malvern Panalytical, **Brazil**)
"Microcalorimeters for characterization of biomolecular stability and interactions"

13:15 Closing ceremony

- Next ISBC Meetings
- Topic proposed by the audience

The concepts of heat transfer and energy conservation serve as the foundation for calorimetry research. "The art of calorimetric technology" refers to the vast and ever-expanding body of data needed to precisely calculate heat and heat exchange rates.

Antoine-Laurent Lavoisier (1743–1794), was the first chemist to employ heat for quantitative experimentation and built the first calorimeter with the mathematician Laplace.

The revolutionary contributions to chemistry made by Lavoisier's theory of conservation of mass and chemical nomenclature laid the groundwork for modern science, whose foundational work continues to impact our daily lives. Every second we spend on this tiny blue planet, every immunization, every antibiotic, every pain reliever, and the air we breathe bear the immortal name of Lavoisier.



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<https://www.unam.mx/>
<https://isbc2024.com/>
<https://isbc.biocalorimetry.org/>
<https://www.calneos.com/>
<https://www.malvernpanalytical.com/>
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El Palacio de Medicina
Universidad Nacional Autónoma de México
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