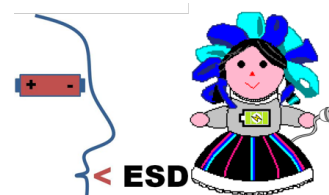




# MicroEchem 2016 Energy Storage Discussions



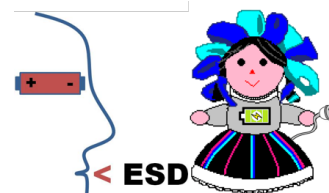
## Report on the organization of the Symposium “ MicroEchem 2016 / Energy Storage Discussions”

Amealco de Bonfil, Querétaro, México  
November 7<sup>th</sup> - 9<sup>th</sup>, 2016



# MicroEchem 2016

## Energy Storage Discussions



### Summary

MicroEchem meeting was carried out for the fourth consecutive year in 2016; these meetings have been focused on disseminating knowledge in areas related with Molecular Electrochemistry and its study for the understanding of electrochemical processes. This year, MicroEchem meeting became partnered with the second Energy Storage Discussions, originally taking place in 2014, which has been a forum of analysis of different aspects of energy storage. This joint event highlighted topics related with electrochemical and other energy storage devices, preserving the emphasis of discussions from a molecular point of view, including modeling of processes along with material evaluation and design. The main topics covered in this meeting were: battery concepts, materials and their characterization, modelling of energy storage systems, and energy storage systems for automotive, mobile and stationary applications.

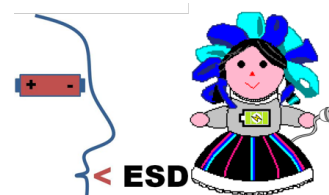
We thank both sincerely and deeply to the kind acceptance and disposition of all the keynote and invited lecturers: Prof. Jean-Michel Savéant, Prof. Marie-Liesse Doublet, Prof. Ezequiel Leiva, Prof. Mark Pritzker, Prof. Alejandro A. Franco, Dr. Johanna Nelson, Dr. Holger Schneider, and Dr. Issis C. Romero. As in previous occasions, the program included oral and poster presentations, as it has become clearly that this forum allows to participants for discussing their work and share it with the invitees. As intended by its original conception, MicroEchem meetings provide an alternative and specialized forum for the Mexican community working with Electrochemistry.

In addition, we would like to thank CIDETEQ-México, who helped with all the administrative affairs of this event, along with Luz María Pérez from Hotel Misión La Muralla, which provides us again with a beautiful venue where people can gain a huge glimpse of the Mexican atmosphere! We also thank our sponsors, which again have trusted in us for developing this event, including Metrohm-Mexico, SAIDE, SAIDESA, and to the Regional Section Mexico of the International Society of Electrochemistry, which again is instrumental in developing this event. Also, the kind consideration of providing a Special Issue of *Electrochimica Acta* devoted to the meeting by Prof. Sergio Trasatti, that will provide a fine selection of works for future reference.



# MicroEchem 2016

## Energy Storage Discussions



As has also been a tradition for this event, the fabulous assistance of M. in Sc. Georgina Armendáriz has been decisive for having this event well-organized, complemented by the helpful contributions by José Luis Rivas Rodríguez, Eduardo Martínez González and Ana Itzel Zárate Guzmán, who provided their relentless young energy and dedication to the event.

We thank you all for assisting and supporting this event.

Sincerely

On behalf of the Organizing Committee  
MicroEchem 2016 – Energy Storage Discussions

**Dr. Carlos Eduardo Frontana Vázquez**

Regional Representative of the International Society of Electrochemistry – Mexico / Titular Researcher at CIDETEQ, SC. Mexico. Tel: +52 442 2116000 ext. 7849

[ultrabuho@yahoo.com](mailto:ultrabuho@yahoo.com) / [microechem2016@gmail.com](mailto:microechem2016@gmail.com)



# MicroEchem 2016

## Energy Storage Discussions



### 1. Organization of the meeting

The meeting was organized by Dr Carlos Frontana and Dr Linda González, and co-organized with Dr Enrique Quiroga (Institute of Physics-BUAP, México) and Dr Jorge Vazquez (Universidad Autónoma Metropolitana, México), from the Energy Storage Discussions group, and the assistance of MSc Georgina Armendariz, MSc Eduardo Martínez González, IQ Jose Luis Rivas and MSc Ana Itzel Zarate, from the “Centro de Investigación y Desarrollo Tecnológico en Electroquímica” (CIDETEQ), México.

As Co-Sponsors on the organization of MicroEchem 2016 along with the ISE, we had the participation of MetroOhm México, SAIDE and SAIDESA.

The cost of the event was full board and included access to the program, accommodation, coffee breaks, meals, and cultural event. The cost was of 5500 mexican pesos for professionals and 4500 for students; also, 12 reduced fees (2000 pesos) were given for the first students participants. The event had no cost for all the invited lecturers.

For the diffusion of the event, a Poster (Fig. 1) and brochure (Fig. 2) were spread. Also, we count with a webpage (disable for the moment): <http://microechem2016.comli.com>, and <https://sites.google.com/site/microechem2016/>, because the page in the comli site that was in the brochure had operational problems. In order to keep contact with the assistants, the following emails were able: [microechem2016@gmail.com](mailto:microechem2016@gmail.com) and [energysd@ifuap.buap.mx](mailto:energysd@ifuap.buap.mx).



# MicroEchem 2016

## Energy Storage Discussions



**MicroEchem 2016**  
**Energy Storage Discussions**  
ISE Sponsored Meeting  
Mision La Muralla, Amealco de Bonfil, Queretaro, Mexico  
November 6<sup>th</sup> – 9<sup>th</sup>, 2016

MicroEchem are meetings focused on disseminating knowledge in areas related with Molecular Electrochemistry and its study for the understanding of electrochemical processes; Energy Storage Discussions, has been a forum of analysis of different aspects of energy storage. This year, both meetings are coming together for a greater contribution, highlighting topics related with electrochemical and other energy devices. The event's program includes Keynote and Invited talks of renowned scientists, and contributions from interested authors (oral & poster). **Topics** include but are not limited to:

- ✓ **Battery concepts** and materials and their characterization, along with emerging technologies.
- ✓ **Capacitor concepts** and materials, and their characterization.
- ✓ **Modelling of energy storage systems:** Quantum mechanical modelling, multiscale modelling, modelling of molecular dynamics, etc.
- ✓ **Other energy storage concepts** (thermal, gas, etc.).
- ✓ **Energy storage systems** for automotive, mobile and stationary **applications:** Control system, cooling system, mechanical system, lifetime and security tests, and mass production.
- ✓ **Recycling.**

**Confirmed Keynote Lecturers**

- Prof. Marie-Liesse Doublet – Université Montpellier 2 (France)
- Prof. Alejandro A. Franco – Université de Picardie Jules Verne (France)
- Prof. Ezequiel Leiva – Universidad Nacional de Córdoba (Argentina)
- Johanna Nelson-Weker - SLAC National Accelerator Laboratory (USA)
  - Prof. Mark Pritzker – University of Waterloo (Canada)
  - Prof. Jean-Michel Savéant - Université Paris 7 (France)

**Important dates**

- Abstract submission deadline: 5<sup>th</sup> October
- Notification of Acceptance: 20<sup>th</sup> October

**Fees (full board + accommodation)**

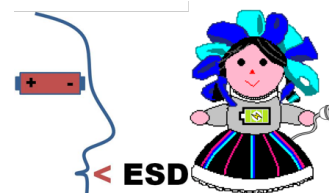
Professionals	5500 MXN
Students	4500 MXN

**More info**  
<http://microechem2016.comli.com>  
[energysd@ifuap.buap.mx](mailto:energysd@ifuap.buap.mx) or [microechem2016@gmail.com](mailto:microechem2016@gmail.com)  
**Dr. Carlos Frontana (coordinator):** [cfrontana@cideteq.mx](mailto:cfrontana@cideteq.mx)

Fig 1. Poster of MicroEchem 2016 / Energy Storage discussions announcement.



# MicroEchem 2016 Energy Storage Discussions



## venue

MicroEchem 2016—Energy Storage Discussions will be held in Hotel Mision La Muralla in Amealco de Bonfil, State of Queretaro, about 45 min away from Queretaro city and 2 h from Mexico City.

Hotel Mision La Muralla Amealco is the only thematic hotel in Mexico, where you can relive the era of the Mexican Revolution and be part of an adventure like no other, with excellent quality and service that characterizes Hoteles Mision.

**Address:**  
Carretera San Juan del Rio - Amealco, km. 26, Amealco de Bonfil, Queretaro, Mexico  
Z.C. 76850

We look forward to seeing you in Amealco!!!!



## organizing committee

**Dr. Carlos Frontana**— CIDETEQ  
**Dr. Linda González-Gutiérrez**—CIDETEQ  
**Dr. Enrique Quiroga-González**—BUAP  
**Dr. Jorge Vázquez-Arenas**—UAM-I

## contact information

**Dr. Carlos Frontana (coordinator)**  
+52 (442) 2116000 ext 7849  
cfrontana@cideteq.mx



## ISE sponsored meeting



## MicroEchem 2016 Energy Storage Discussions



November 6<sup>th</sup>–9<sup>th</sup>, 2016

## invitation

**MicroEchem** are meetings focused on disseminating knowledge in areas related with Molecular Electrochemistry and its study for the understanding of electrochemical processes; **Energy Storage Discussions**, has been a forum of analysis of different aspects of energy storage. This year, both meetings are coming together for a greater contribution, highlighting topics related with electrochemical and other energy devices. The event's program includes Keynote and Invited talks of renowned scientists, and contributions from interested authors (oral & poster).

**Selected participants** will be invited to publish a manuscript in the ISE flagship journal **"Electrochimica Acta"** (IF 4.803, JCR 2015 Edition).

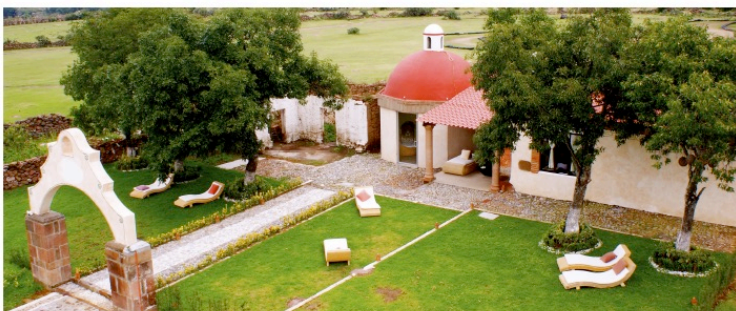
## scientific scope

Topics will include **but are not limited to:**

- Battery concepts, materials and their characterization, along with emerging technologies.
- Capacitor concepts and materials, and their characterization.
- Modelling of energy storage systems.
- Other energy storage concepts (thermal, gas, etc.).
- Applications of energy storage systems.
- Recycling

## confirmed keynote lectures

- **Prof. Marie-Liesse Doublet** – Université Montpellier 2 (France)
- **Prof. Alejandro A. Franco** – Université de Picardie Jules Verne (France)
- **Prof. Ezequiel Leiva** – Universidad Nacional de Córdoba (Argentina)
- **Prof. Johanna Nelson-Weber**—SLAC National Accelerator Laboratory (USA)
- **Prof. Mark Pritzker** – University of Waterloo (Canada)
- **Prof. Jean-Michel Savéant** - Université Paris 7 (France)



## registration

**Visit:** <http://microechem2016.comli.com>

**Or email:**  
energysd@ifuap.buap.mx  
microechem2016@gmail.com

**Abstract submission deadline:**  
October 5<sup>th</sup>, 2016

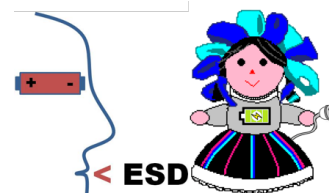
Fig 2. MicroEchem 2016 / Energy Storage Discussions Brochure.

MicroEchem 2016 / Energy Storage Discussions. Queretaro, Mexico. November 7<sup>th</sup> – 9<sup>th</sup>, 2016



# MicroEchem 2016

## Energy Storage Discussions



### 2. Participants

This year we had the participation of among 60 persons, which were 32 researchers and 28 students, from different universities and research institutions in México and foreigner.

### 3. Scientific contributions.

MicroEchem 2016 count with 9 tutorial/invited lectures, 22 oral contributions and 20 poster contributions, focused on useful practical concepts in energy storage, materials, modelling and molecular Electrochemistry. Table 1 show the detail of the tutorial and invited lectures presented on the meeting.

Table 1. Tutorial and Invited lectures presented in MicroEchem 2016 / Energy Storage Discussions.

Lecturer name	Lecture title	Institution	Country
Prof. Jean Michel Savéant	<ol style="list-style-type: none"><li>1. Storing electrical energy in molecules. Molecular catalysis of the CO<sub>2</sub>-to-CO electrochemical conversion.</li><li>2. How Do “Pseudo-Capacitors” Store Energy? Are “Pseudo-Capacitors” Really “Pseudo”?</li></ol>	UMR CNRS - Université Paris Diderot - Paris	France
Dr. Johanna Nelson Weker	In situ Synchrotron-based X-ray Microscopy on Energy Storage Materials	SLAC Accelerator Laboratory, Stanford University	USA
Prof. Marie-Liesse Doublet	Computational and Theoretical Chemistry: Powerful tools for a Rational Design of Electrode	Université Montpellier 2	France



# MicroEchem 2016

## Energy Storage Discussions



	Materials for Li-ion Batteries		
--	--------------------------------	--	--

Table 1. Continuation.

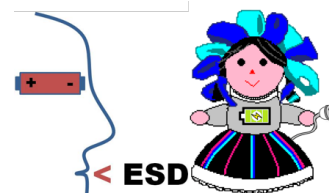
Lecturer name	Lecture title	Institution	Country
Prof. Ezequiel Leyva	Atomistic and coarse-grained modeling of Li-ion batteries	Universidad Nacional de Córdoba	Argentina
Prof. Mark Pritzker	Overview of macroscopic modelling for Li-ion batteries on the basis of porous-electrode theory	University of Waterloo	Canada
Prof. Alejandro A. Franco	Multiparadigm and multiscale computational modeling of rechargeable batteries: from theory to practice	Université de Picardie Jules Verne	France
Dr. Holger Schneider	Development of innovative battery materials and next generation battery systems at BASF	BASF	USA
Dr. Iسس C. Romero	Materials Synthesis for energy storage devices and catalysis	Instituto Politécnico Nacional	México

The Program of MicroEchem 2016 / Energy Storage Discussions was organized as is shown in Fig. 3. A cultural event was included in the program; which consisted in a one-hour concert of arias and romantic music by Martha Juliana Aych, a mexican soprano.





# MicroEchem 2016 Energy Storage Discussions

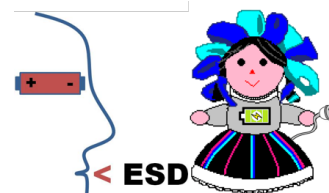


	Monday 6th	Monday 7th	Tuesday 8th	Wednesday 9th
			Breakfast	Breakfast
09:00			Marié Liesse Doublet	Holger Schneider
09:20				
09:40		Reception		
10:00		J. M. Savéant 1	oral	oral
10:20			oral	oral
10:40			oral	oral
11:00		Coffee Break	Coffee Break	Coffee Break
11:20		Johana Nelson W	Ezequiel Leyva	J. M. Savéant 2
11:40				
12:00				
12:20		oral	oral	Discussion
12:40		oral	oral	Closure
13:00		oral	oral	Lunch
13:20		Lunch	Lunch	
13:40				
14:00				
14:20				
14:40				
15:00				Issis Romero
15:20		oral	oral	
15:40				
16:00				
16:20				
16:40		oral	Discussion	
17:00	Registration	Coffee Break	Coffee Break	
17:20	Acomodation	oral	Poster session	
17:40		oral		
18:00		oral		
18:20		oral		
18:40		Mark Pritzker		Cultural event
19:00				
19:20		Discussion	Dinner	
19:40				
20:00		Dinner	Dinner	
20:20				
20:40				
21:00				

Fig. 3. General program of MicroEchem 2016/ Energy Storage Discussions, from November 7th to 9th, 2016.



# MicroEchem 2016 Energy Storage Discussions



## 4. Book of abstract

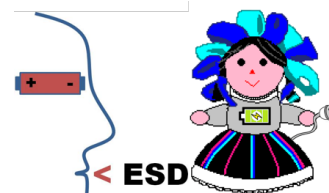
A book of abstracts was printed and distributed at the beginning of the meeting, available for all the participants. Fig 4 shows the cover of the book of abstracts.



Fig 4. Book of abstracts cover of MicroEchem 2016/ Energy Storage Discussions.



# MicroEchem 2016 Energy Storage Discussions



## 5. Photogallery

Finally, we present some pictures of MicroEchem 2016 / Energy Storage Discussion meeting.



MicroEchem 2016 participants.



# MicroEchem 2016 Energy Storage Discussions



The audience



Opening of the meeting



Prof. Jean-Michel Savéant



Dr. Johana Nelson



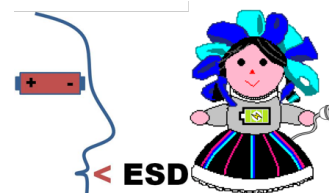
Prof. Mark Pritzker



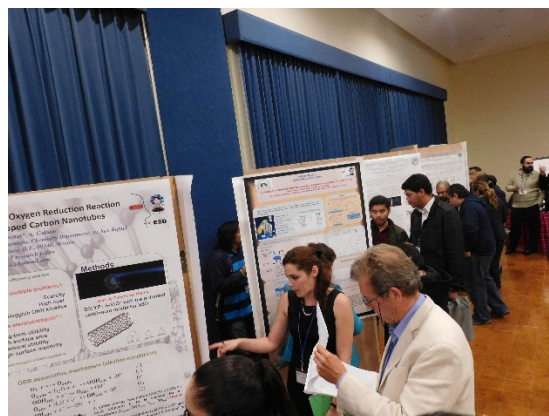
Prof. Marie-Liesse Doublet



# MicroEchem 2016 Energy Storage Discussions



Poster session



Poster session



Cultural event with the soprano Martha Juliana Ayech



Friends and collaborators