

**IZC**

**18<sup>TH</sup> INTERNATIONAL ZEOLITE CONFERENCE**  
Zeolites for a Sustainable World

**June 19th – 24th, 2016**  
**Windsor Barra Hotel Convention Center**  
**Rio de Janeiro – Brazil**



**FINAL REPORT**

## General Information

**Name and date of Conference:**

**18th International Zeolite Conference -  
June 19th to 24th, 2016 – Windsor Barra Hotel**

**Site : <http://www.izc18.com/>**

**Plenary rooms used:**

**Segovia I to IV  
Alhambra I and II  
El Pardo I and El Pardo II**

**N° of Registered participants: 480 participants**

**No show: 40 participants**

**Event Promotor:**

**SBCat– Sociedade Brasileira de Catálise**

**Executive Secretariat: C&M Congresses Meetings Eventos Ltda**

**Constança Carvalho – Director**

**Marion Bronz – Director**

**Travel Agency: HAVAS Creative Tours**



## VENUE



**Windsor Barra Hotel – Barra da Tijuca – Rio de Janeiro**

## About the Event

### ZEOLITES FOR A SUSTAINABLE WORLD

Porous materials have accompanied Humankind since ancient times, witnessing every endeavour towards Civilisation. Used in day-to-day utensils, shelter or protection, zeolites, clays and other natural porous solids formed the basis for pottery, weapons and construction. More recently, they have also been used as adsorbents and catalysts in the ultimate end of producing energy in the form of fuels for heating and transportation.

Such concept led us to the 2016's International Zeolite Conference theme, a recognition of the need to investigate and discuss the opportunities of using porous materials aiming at obtaining sustainable production means, clean environment, continuous supply of healthy water and air, always maintaining the level of comfort and sanity to which we are accustomed.

Our ever better acquaintance with the elegant complexity of zeolites and other porous materials conducts to diversified fields of research and practical uses for such materials. Bearing that philosophy in mind, the main topics of the IZC 2016 were chosen.

# Themes

## 1. Ordered porous materials: syntheses and modifications

1.1. Zeolites and zeotypes

1.2. Natural zeolites

1.3. Mesoporous materials and hierarchical porous structures, 2D to 3D zeolites and lamellar zeolites

1.4. Hybrid and composite materials (MOF, PMO, ZIR, porous carbons, etc)

1.5. Porous materials membranes

## 2. Advances in fundamental understanding of structure and properties

2.1. Theory and modeling

2.2. Advanced characterization techniques

2.3. Mechanistic studies; impact of in situ and operando techniques

## 3. Industrial and emerging applications

3.1. Oil refinery and petrochemistry

3.2. Non-oil feedstocks into end products (including biomass, plastics and CO<sub>2</sub> as feedstocks)

3.3. Adsorption, separation, carbon capture and storage (CCS) and CCS for enhanced oil recovery

3.4. Novel applications (health, electronics, sensors)

## BRECK AWARD



The recipients of the 2016 [Breck Award](#) are:  
**Svetlana Mintova** and **Valentin Valtchev**  
of the CNRS, Laboratory of Catalysis and  
Spectrochemistry, Caen, France  
*for the understanding the nucleation in organic-free  
hydrogel systems leading to rational design of industrially  
relevant nanosized zeolites.*



## HONORARY MEMBERSHIP AND IZA AWARD



### IZA Award

**Prof. Avelino Corma** (Spain) *for outstanding achievements in the synthesis of zeolites and their application as catalysts in petrochemical processes and fine chemicals synthesis.*

### Honorary Membership

**Carmine Colella**, Italy

*for contribution given to the IZA through the constitution of the Natural Zeolite Commission, the preservation of the related culture, the update of IZA history and the keeping of IZA archive;*

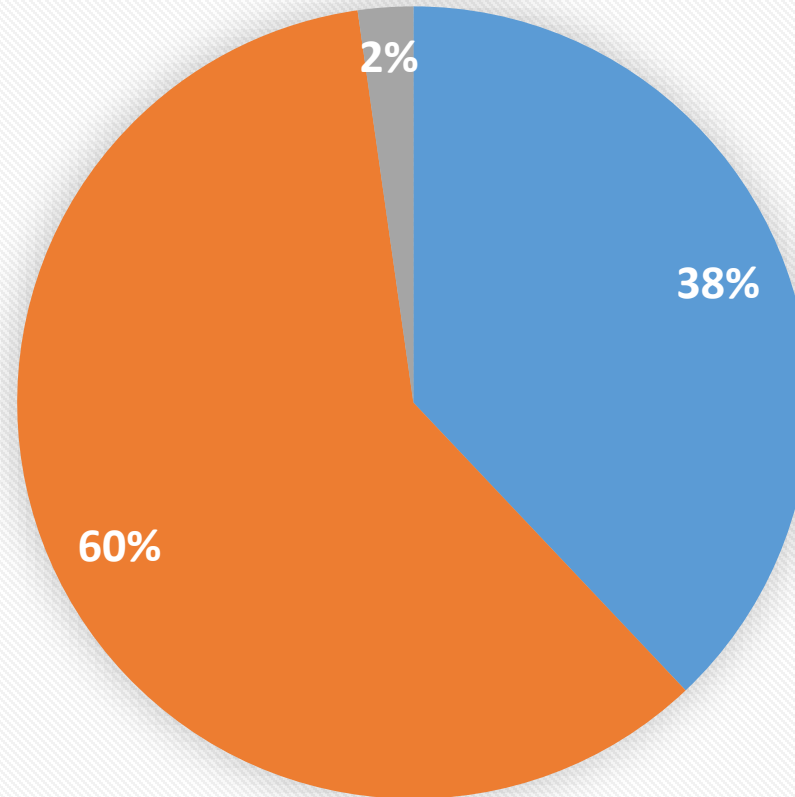
and

**Michael Stöcker**, Norway

*for co-founding the Journal "Microporous and Mesoporous Materials" and for having supported the culture of zeolite science as Editor-in-Chief of this Journal for many years*

## ABSTRACTS STATISTICS

### 622 Accepted Abstracts



■ Oral - 236 Abstracts ■ Poster - 372 Abstracts ■ Decline Paper - 14 Abstracts



# COMMITTEES

## EXECUTIVE COMMITTEE

### CHAIR

Eduardo Falabella Sousa Aguiar | UFRJ

### VICE-CHAIR

Claudio José de Araujo Mota | UFRJ

### SECRETARY

Heloise de Oliveira Pastore | UNICAMP

### TREASURER

Cristiane Assumpção Henriques | UERJ

## ORGANIZING COMMITTEE

Alexandre Leiras Gomes | UFRJ

Dilson Cardoso | UFSCar

Ernesto Urquieta Gonzalez | UFSCar  
Fatima Maria Zanon Zotin  
| UERJ

Maria Auxiliadora Scaramelo Baldanza | UFRJ

## SCIENTIFIC COMMITTEE

### CHAIR

Claudio José de Araújo Mota | UFRJ-Brazil

### CO-CHAIR

Heloise de Oliveira Pastore | UNICAMP-Brazil

## COMMITTEES

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Heloise de Oliveira Pastore | UNICAMP



#### TREASURER

Cristiane Assumpção Henriques | UERJ



## COMMITTEES

### INTERNATIONAL ZEOLITE ASSOCIATION (IZA)

#### COUNCIL MEMBERS

#### PRESIDENT

Giuseppe Bellussi | Italy

#### SECRETARY

Jihong Yu | China

#### VICE-PRESIDENT

Paul Wright | UK

#### TREASURER

Raul Lobo | USA

#### Members

Miroslav Derewinski – Poland

Suk Bong Hong – South Korea

Eduardo Falabella Sousa-Aguiar – Brazil

Girolamo Giordano – Italy

Russel Morris – UK

Tatsuya Okubo – Japan

Joaquin Perez Pariente – Spain

Michael Tsapatsis - USA

Valentin Valtchev – France

Bert Weckhuysen – The Netherlands



## NEW MEMBERS

As usual, in the IZA General Assembly the election of new members of the Council was carried out. Such new members, along with the remaining ones, have chosen the new President, Vice-president, Secretary and Treasurer. Hence, the new Council composition is the following:

### INTERNATIONAL ZEOLITE ASSOCIATION (IZA)

#### NEW COUNCIL MEMBERS

##### **PRESIDENT**

Valentin Valtchev | France

##### **VICE-PRESIDENT**

Suk Bong Hong | South Korea

##### **SECRETARY**

Heloise Pastore | Brazil

##### **TREASURER**

Raul Lobo | USA

#### **Members**

Martin Hartmann – Germany

Masaiko Matsukata - Japan

Roberto Millini – Italy

Russel Morris – UK

Fernando Rey – Spain

Mathias Thommes – USA

Michael Tsapatsis - USA

Bert Weckhuysen – The Netherlands

Jihong Yu – China

Xiaodong Zou - Sweden

## PLENARY SPEAKERS



**Prof. Gabriele Centi**

University of Messina, Italy



**Dr. Matthias Thommes**

Quantachrome Corporation, USA



**Prof. Notker Rösch**

Technical University of Munich,  
Germany and Institute of High  
Performance Computing, Agency  
for Science, Technology and  
Research, Singapore



**Prof. Wilhelm Schwieger**

University of Erlangen, Germany



**Prof. Takashi Tatsumi**

National Institute of Technology  
and Evaluation, Japan

## KEYNOTE SPEAKERS



**Prof. Agustín Martínez**

Polytechnic University of Valencia,  
Spain



**Prof. Feng-Shou Xiao**

Zhejiang University, China



**Prof. Fernando Rey**

Polytechnic University of Valencia,  
Spain



**Prof. Filipa Ribeiro**

Technical Superior Institute,  
Portugal



**Prof. Georgi Vayssilov**

University of Sofia, Bulgaria



**Prof. Guido Busca**

University of Genoa, Italy



**Prof. Jean Pierre Gilson**

University of Caen, France and  
Dalian Institute of Chemical  
Physics, China



**Dr. Leandro Martins**

Julio Mesquita State University,  
Brazil



## KEYNOTE SPEAKERS



**Prof. Kenneth Balkus**

Univ. of Texas, Dallas, USA



**Prof. Russell Morris**

University of St. Andrews, UK



**Dr. Sonia Cabral de Menezes**

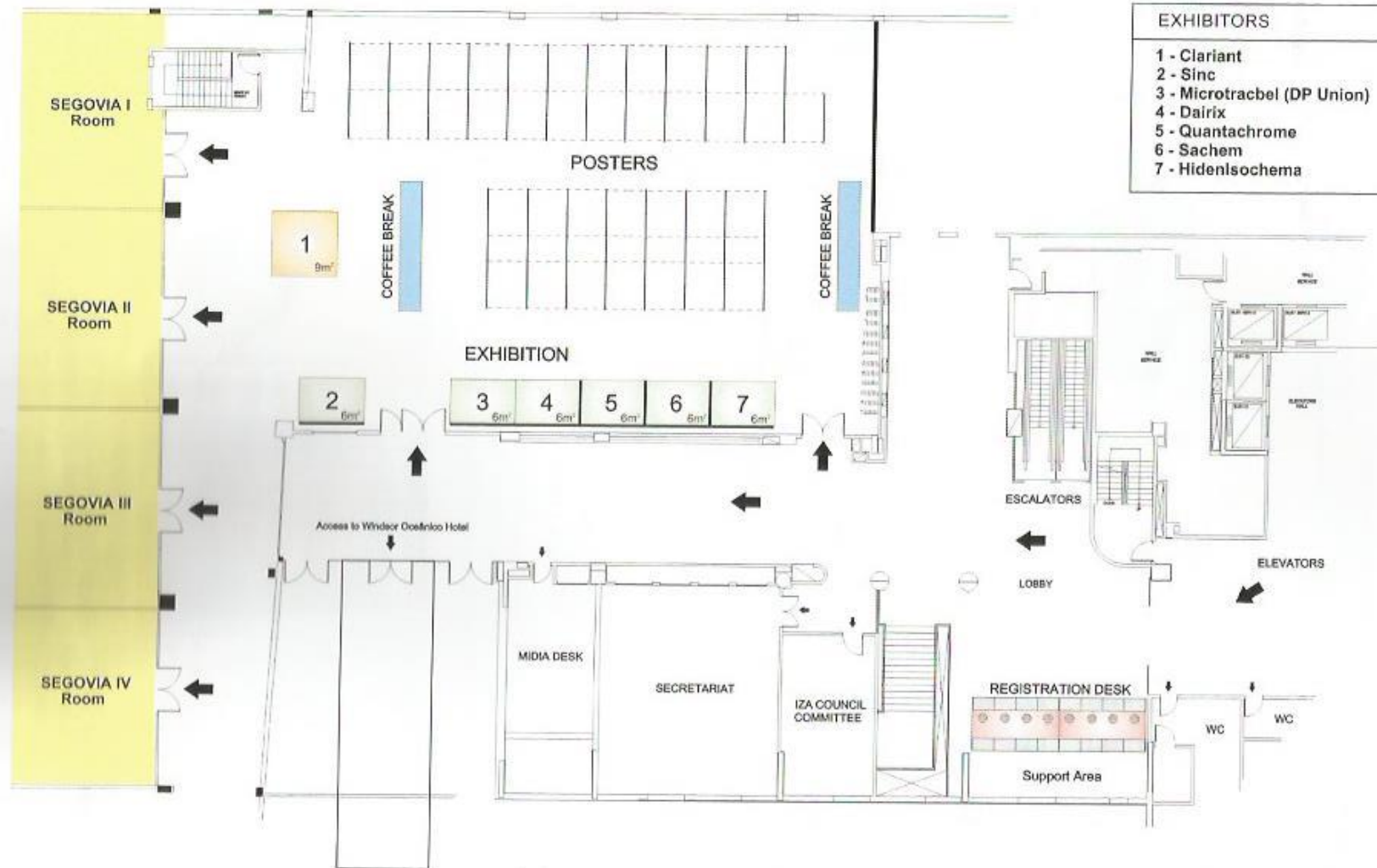
Petrobras, Brazil

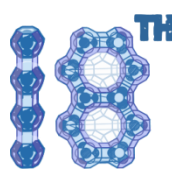


**Guillaume Maurin**

University of Montpellier, France

# EXHIBITORS





## PROGRAM ORVERVIEW

	SUNDAY, 19 <sup>th</sup>				MONDAY, 20 <sup>th</sup>				TUESDAY, 21 <sup>st</sup>			
	Segovia I-IV				Segovia I	Segovia II	Segovia III	Segovia IV	Segovia I	Segovia II	Segovia III	Segovia IV
09:00-09:20	PLENARY 2								PLENARY 3			
09:20-09:40	COFFEE BREAK								COFFEE BREAK			
09:40-10:00	KN1								KNS			
10:00-10:20	OP1   ID74								OP58   ID322			
10:20-10:40	OP2   ID390								OP59   ID646			
10:40-11:00	OP3   ID184								OP60   ID659			
11:00-11:20	OP4   ID191								OP61   ID789			
11:20-11:40	LUNCH								LUNCH			
11:40-12:00	OP21   ID56								KN7			
12:00-12:20	OP22   ID105								OP80   ID500			
12:20-12:40	OP23   ID241								OP81   ID509			
12:40-01:00	OP24   ID260								OP82   ID301			
02:00-02:20	OP25   ID427								OP83   ID201			
02:20-02:40	OP26   ID195								OP87   ID537			
02:40-03:00	REGISTRATION								REGISTRATION			
03:00-03:20	COFFEE BREAK								COFFEE BREAK			
03:20-03:40	POSTER SESSION 1   ROOM: ALHAMBRA I-II								POSTER SESSION 2   ROOM: ALHAMBRA I-II			
03:40-04:00	OP39   ID410								OP100   ID185			
04:00-04:20	OP40   ID17								OP101   ID192			
04:20-04:40	OP41   ID179								OP102   ID102			
04:40-05:00	OP42   ID77								OP103   ID531			
05:00-05:20	OP43   ID663								OP104   ID440			
05:20-05:40	OPENING CEREMONY								OPENING CEREMONY			
05:40-06:00	PLENARY 1								PLENARY 1			
06:00-06:20	COCKTAIL								COCKTAIL			
06:20-06:40												
06:40-07:00												
07:00-07:20												
07:20-07:40												
07:40-08:00												
08:00-09:00												
09:00-10:00												

	WEDNESDAY, 22 <sup>nd</sup>				THURSDAY, 23 <sup>rd</sup>				FRIDAY, 24 <sup>th</sup>			
	Segovia I	Segovia II	Segovia III	Segovia IV	Segovia I	Segovia II	Segovia III	Segovia IV	Segovia I	Segovia II	Segovia III	Segovia IV
09:00-09:20	PLENARY 4								KN12			
09:20-09:40	COFFEE BREAK								COFFEE BREAK			
09:40-10:00	KN8								KN9			
10:00-10:20	OP119   ID258								OP169   ID590			
10:20-10:40	OP120   ID425								OP170   ID543			
10:40-11:00	OP121   ID632								OP171   ID508			
11:00-11:20	LUNCH								LUNCH			
11:20-11:40	AFTERNOON EXCURSION								AFTERNOON EXCURSION			
11:40-12:00	COFFEE BREAK								COFFEE BREAK			
12:00-12:20	OP146   ID504								KN11			
12:20-12:40	OP147   ID525								OP157   ID220			
12:40-01:00	OP148   ID634								OP158   ID688			
02:00-02:20	OP149   ID615								OP159   ID250			
02:20-02:40	OP150   ID238								OP160   ID511			
02:40-03:00	OP151   ID371								OP161   ID69			
03:00-03:20	COFFEE BREAK								COFFEE BREAK			
03:20-03:40	POSTER SESSION 1   ROOM: ALHAMBRA I-II								POSTER SESSION 2   ROOM: ALHAMBRA I-II			
03:40-04:00	OP172   ID196								OP173   ID317			
04:00-04:20	OP173   ID365								OP174   ID83			
04:20-04:40	OP174   ID407								OP175   ID431			
04:40-05:00	OP175   ID596								OP176   ID86			
05:00-05:20	OP176   ID129								OP177   ID188			
05:20-05:40	OP177   ID332								OP178   ID476			
05:40-06:00	OP178   ID365								OP179   ID759			
06:00-06:20	OP179   ID407								OP180   ID15			
06:20-06:40	OP180   ID596								OP181   ID416			
06:40-07:00	OP181   ID248								OP182   ID281			
07:00-07:20	OP182   ID248								OP183   ID683			
07:20-07:40	OP183   ID248								OP184   ID274			
07:40-08:00	OP184   ID248								OP185   ID577			
08:00-09:00	CONGRESS DINNER								CONGRESS DINNER			
09:00-10:00	CONGRESS DINNER								CONGRESS DINNER			

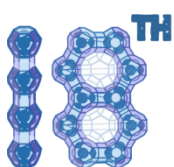
- Zeolites and Zeotypes
- Zeolite Membranes
- Mesoporous, hierarchical
- Catalysis (non-oil)
- Adsorption, separation, CCS
- Mechanism, in situ operando
- Theory and modeling
- Characterization
- Keynote Speakers
- Plenary

- Hybrids and composites
- Novel applications
- Young investigator

### Technical Session

	MONDAY, 20 <sup>th</sup>			TUESDAY, 21 <sup>st</sup>		
	Segovia I	Segovia II	Segovia III	Segovia I	Segovia II	Segovia III
04:20-04:45	TC1	TC3	TC5	TC1	TC3	TC5
04:45-05:10	TC2	TC4	TC6	TC2	TC4	TC6





# REGISTRATION FEES

## CATÁLISE - REGISTRATION UPDATE

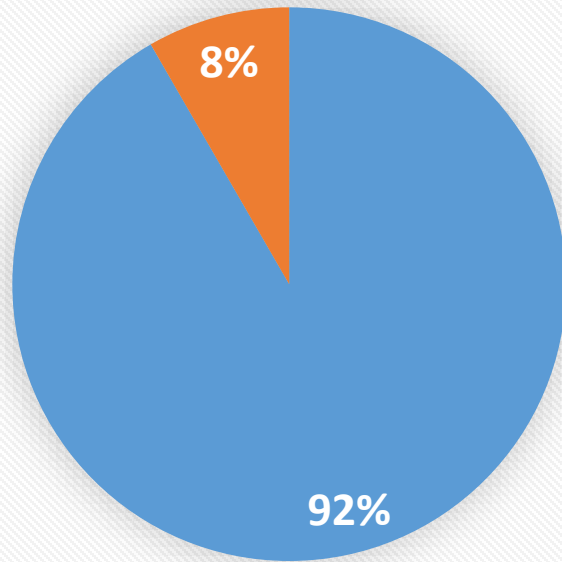
Category	<i>Early bird</i>	<i>Regular</i>	<i>On Site</i>
	(up to March 28th)	(between March 29th and April 25th)	(after April 25th)
Full Participant	US\$ 600	US\$ 650	US\$ 750
Student*	US\$ 300	US\$ 350	US\$ 450
Brasil_ Full Participant	R\$ 1.000,00	R\$ 1.250,00	R\$ 1.500,00
Brasil_ Student	R\$ 400,00	R\$ 500,00	R\$ 600,00

*\*This fee applies to those undertaking a full time course for a recognized degree or a diploma at a university or equivalent institution. Proof required*

*(Esta taxa aplica-se a todos os que realizam um curso em tempo integral para um grau reconhecido ou um diploma de uma universidade ou instituição equivalente. comprovativos exigidos)*

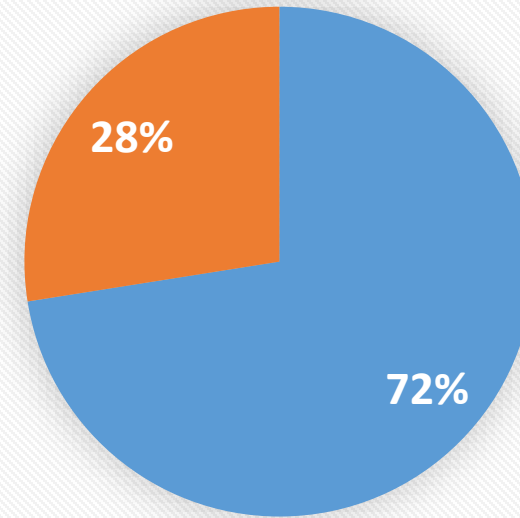
# REGISTRATION

## 480 Registered Participants



■ Present - 440    ■ No Show - 40

## 440 Participants Attending



■ Full Participant - 319    ■ Student - 121

## REGISTRATION BY COUNTRY

Algerie	1	Finland	1	Russia	4
Argentina	6	France	46	Singapore	2
Australia	10	Germany	34	Slovak Republic	1
Belgium	15	India	1	Slovenia	2
Bolivia	1	Iran	1	South Korea	6
Brazil	77	Italy	9	Spain	22
Bulgaria	1	Japan	18	Sweden	9
Canada	6	Lebanon	1	Switzerland	1
Chile	1	Mexico	3	Turkey	4
China	28	Netherlands	9	United Arab Emirates	2
Colombia	1	Norway	5	United Kingdom	33
Czech republic	13	Poland	19	United State	29
Denmark	4	Portugal	6		



# EXCURSION



# SOCIAL DINNER





# PLENARY CONFERENCES



# POSTER SESSIONS





# THE END



# SPONSORS

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## PRE-CONFERENCE SCHOOL

Following on the footsteps of previous International Zeolite Conferences, the 18<sup>th</sup> IZC was preceded by the Pre-Conference School on Zeolites.

Organized at the Institute of Chemistry, University of Campinas, the School took place on the 17<sup>th</sup> and 18<sup>th</sup> June, 2016.

We began with 105 registrations that were cancelled along the time to finish with 51 attendees to the School.

Nine lectures were scheduled for this period, each one of them of 90 min comprising lecture and discussion. The School began on Friday 17<sup>th</sup> with Prof. Svetlana Mintova lecturing on *crystallization of zeolites*. Her contribution was followed by Prof. Raul Lobo who talked to us about *basic zeolite characterization* and Prof. Dilson Cardoso on general aspects of *catalysis by zeolites*.



**Prof. Svetlana Mintova**  
*Zeolites crystal growth: new findings and open question*



**Prof. Raul Lobo**  
*1. A Primer on Zeolite Characterization*  
*2. Cu-Containing Zeolites for the Selective Reduction of NO<sub>x</sub>*



**Prof. Dilson Cardoso**  
*Catalysis by Zeolites*



## PRE-CONFERENCE SCHOOL

From these three introductory lectures in the Chemistry of Zeolites, the program shifted to focus on the theme of the Conference “*Zeolites for a Sustainable World*”. In that direction, Prof. Lobo came back to talk about *NO<sub>x</sub> abatement* and Prof. Gabriele Centi conducted us into the paths of *CO<sub>2</sub> utilization* by the use of zeolitic catalysts. Moving on to biofuels and biomass, Prof. Guido Busca lectured about *zeolitic acidity and basicity* and their use in ethanol transformations.



**Prof. Gabriele Centi**  
*Opportunities for micro- and mesoporous materials for the conversion of CO<sub>2</sub>*



**Prof. Guido Busca**  
*Acidity and Basicity of Zeolites*



## PRE-CONFERENCE SCHOOL

On the biomass side, Prof. Jean Marcel Gallo displayed their use in a *sustainable system of production of fuels and chemicals*.

Finally, the possibilities of the *catalytic transformation of plastics into fuels* was explained by Prof. David Serrano.



**Prof. Jean Marcel Gallo**  
*Zeolites as catalysts in  
biorefinery*



**Prof. David Serrano**  
*Design of Zeolitic Catalysts  
for the Production of Fuels  
and/or Chemicals from  
Waste Plastics*

## PRE-CONFERENCE SCHOOL

The broad geographic distribution of the participants was a point of attention. From the 51 attendees, 29 were Brazilians, 22 Europeans, 5 Asians and 2 North Americans. There were 32 post-doc and PhD students and 19 professionals: 15 from the Academia and 4 from the Industry.

A participative and engaged audience made the questions time dynamic and broadened the scope of the talk. Coffee breaks were used to mingle, to exchange experiences and to collaborate.



Questions to Prof. Mintova

## PRE-CONFERENCE SCHOOL

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Questions to  
Prof. Mintova



Coffee break  
on July, 18<sup>th</sup>.



## PRE-CONFERENCE SCHOOL

The general evaluation was that the School brought the attention to several fundamental and very important points. Professionals were remembered of features of zeolites that were not visited often due to their diverse focus on the work. The Group Photo follows.

