

# 16<sup>th</sup> International Zeolite Conference *joint with the* 7<sup>th</sup> International Mesostructured Materials Symposium

**IZC-IMMS 2010**

**SORRENTO, JULY 4 - 9, 2010**



## *Meeting Report*

*Anna Maria Casella, Gabriele Centi*  
March 2011

The 16<sup>th</sup> *International Zeolite Conference* (16<sup>th</sup> IZC) joint with the 7<sup>th</sup> *International Mesostructured Materials Symposium* (7<sup>th</sup> IMMS) was held in Sorrento, Naples (Italy) from 4<sup>th</sup> to 9<sup>th</sup> July, 2010. The conference was organized by the Italian Zeolite Association (AIZ) and the Interdivisional Group of Catalysis of the Italian Chemical Society (GIC-SCI), together with IZA (International Zeolite Association) and IMMA (International Mesostructured Materials Association). The 16<sup>th</sup> IZC was preceded by a Pre-Conference school organized in Maiori, Salerno (Italy).

Likewise in the past, participants came from numerous countries spread around the world, what enhanced the international profile of the Conference. Over 800 researchers (71% delegates; 27% students; 2% retired) from 51 countries attended the IZC-IMMS2010 and more than 1000 abstracts were submitted.

Table 1 reports the number of registrants per type of participant. The ratio delegates + students/abstracts submitted was 0.73.

**Table 1. Total number of registrants at IZC-IMMS 2010**

Type	Nr	ACCOMPANYING Nr
Delegates	502	
Delegates / Accompanying Persons	47	48
Emeritus Professor	9	
Emeritus Professor / Accompanying Persons	4	4
Retired Scientists	2	
Retired Scientists / Accompanying Persons	1	1
Student Fee	212	
Student Fee / Accompanying Persons	1	1
<b>TOTAL</b>	<b>778</b>	<b>54</b>

The distribution of submitted abstracts and the distribution of participants per country are shown in Figure 1 and Figure 2, respectively.

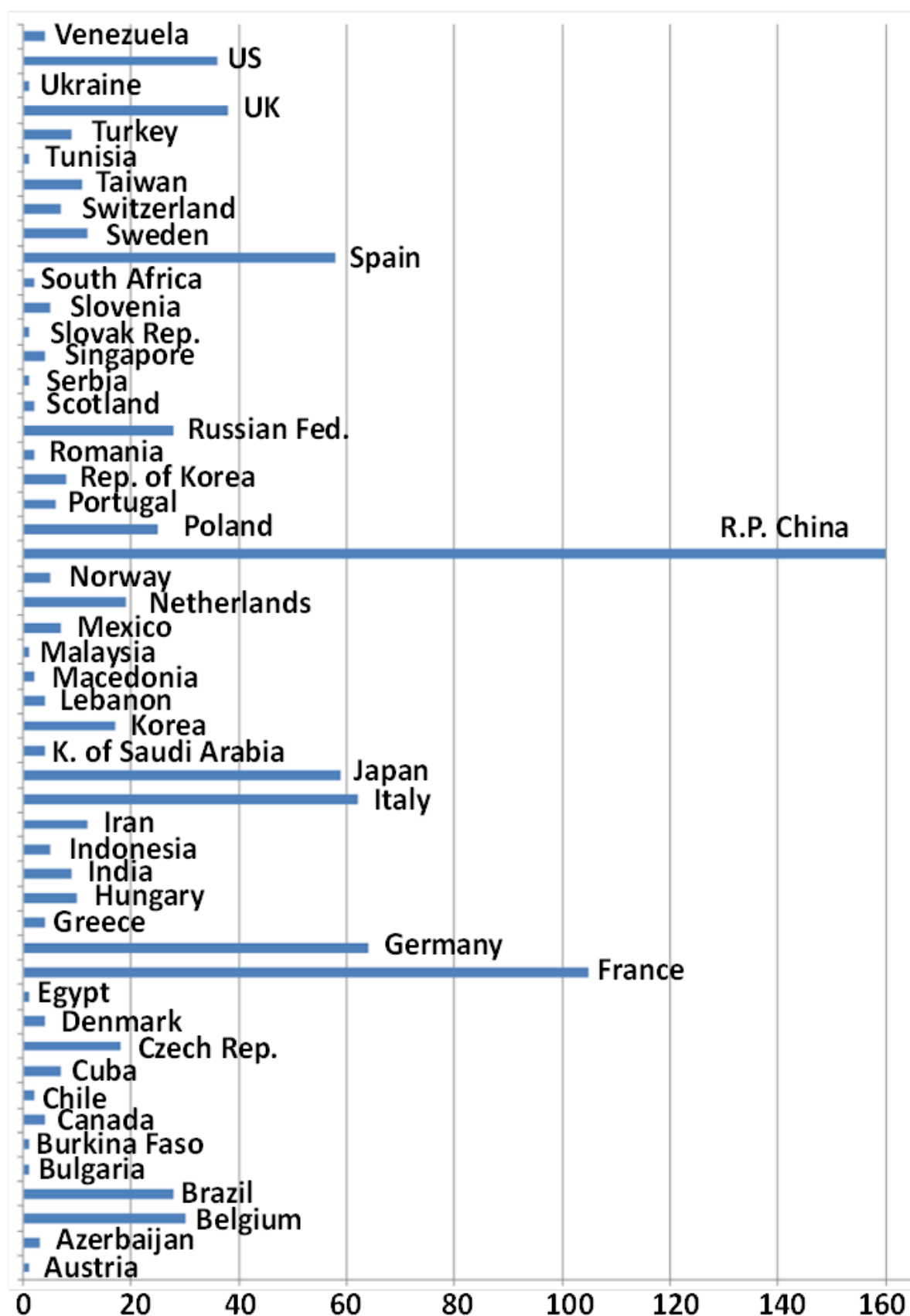


Figure 1. Distribution of submitted abstracts per country (total number of countries. 51).

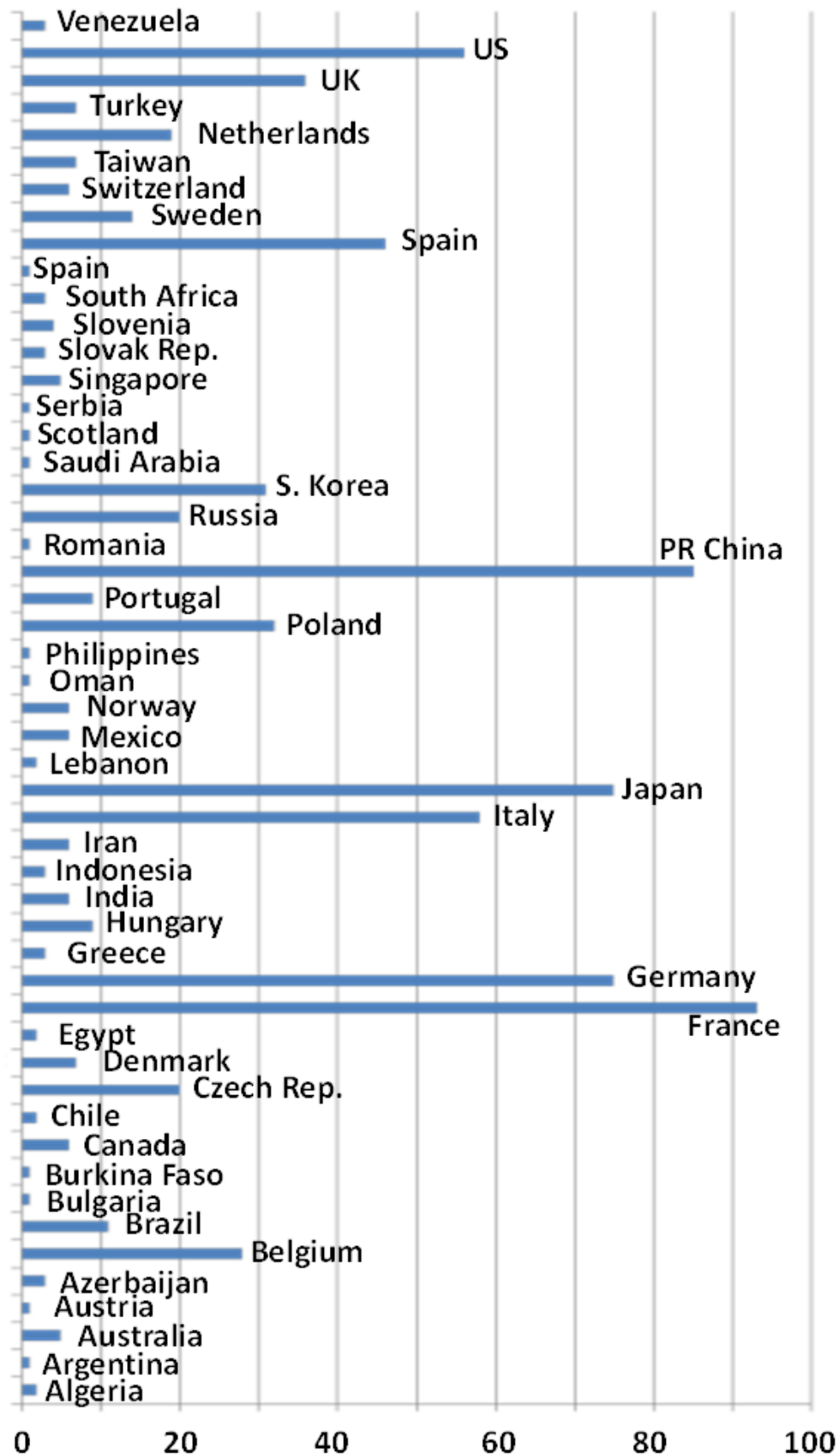


Figure 2. Distribution of participants per country (total number of countries. 51).

The scientific contributions were presented in 5 *Plenary Lectures*, 13 *Keynote lectures*, 206 *Oral Presentations*, and for the first time in this conference series, in about 60 *Short Orals*. The scientific programme was completed by two afternoon poster sessions, with some 400 posters each including also the *Recent Research Reports*. The posters were evaluated by a scientific jury and prizes were awarded to the best two of them.

The Scientific Programme was organized in a five-day format (from Monday, July 5<sup>th</sup> through Friday, July 9<sup>th</sup>) in four parallel sessions (morning and afternoon) and time was allocated to the traditional IZA and IMMA business, as well as to the social events (coffee break, banquet, excursion) to promote human contacts. The submitted abstracts were organized in four main areas (1. *Synthesis and Characterization*; 2. *Structure and Theory*; 3. *Applications*; 4. *New frontiers in Micro and Mesostructured Materials*), in parallel scientific sessions.

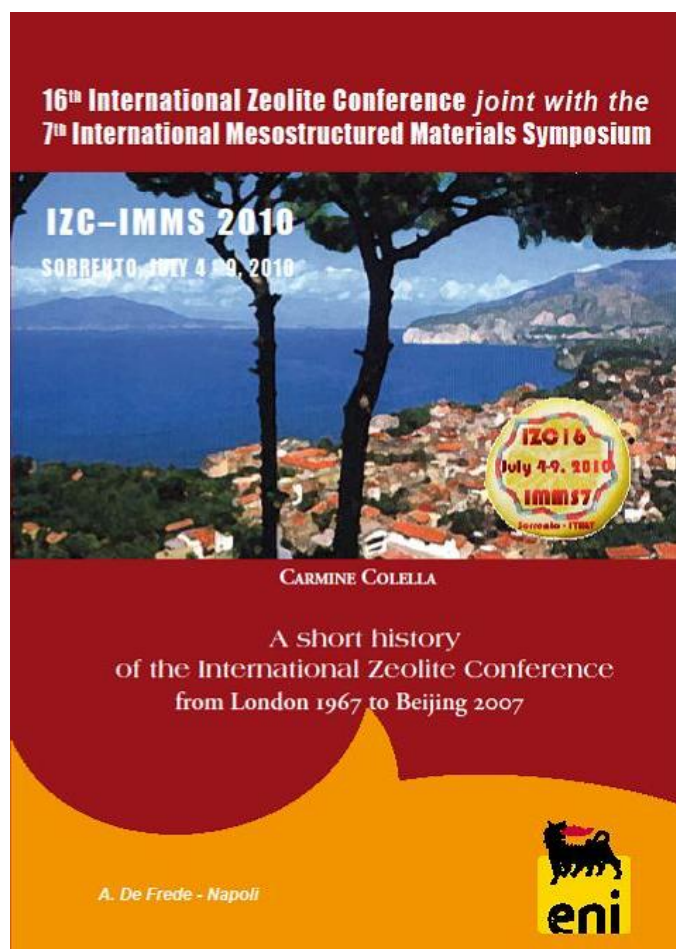
Table 2 shows the distribution of the submitted abstracts per topics.

**Table 2. Distribution of submitted abstracts per topics**

Topic	Nr. Abstract		
1.1	240	1. Synthesis and Characterization	1.1 Advanced synthesis, crystal-growth and post-treatment
1.2	56		1.2 Insights on natural and synthetic MMM, and genesis conditions
2.1	47	2. Structure and theory	2.1 Advances on structural aspects
2.2	44		2.2 Theory and computational design
3.1	276	3. Applications	3.1 Catalysis and membranes
3.2	115		3.2 Adsorption/diffusion and ion exchange
4.1	96	4. New frontiers in Micro and Mesostructured materials	4.1 Hybrid and composite materials (CTF, ECS, MOF, PMO, ZIF, etc.)
4.2	49		4.2 New applications: bio-materials, nano-medicine, opto- and nano -electronics
4.3	19		4.3 From minerals to materials



In addition, a mini-symposium was organized by Carmine Colella (Federico II University, Napoli, Italy) to celebrate the father of zeolite chemistry, Richard Maling Barrer (Wellington, New Zealand, 16 June 1910 - Chislehurst, Kent, 12 September 1996) on the occasion of his birthday centenary. During the mini-symposium, four lectures were given, respectively, by Rosario Aiello, University of Calabria, Italy (*Contributions of R. M. Barrer to zeolite synthesis and modification*), Eric N. Coker, Advanced Materials Laboratory, Sandia National Laboratories, Albuquerque, NM, USA, (*Richard M. Barrer: A commentary on his contributions to the field of ion exchange in zeolites*), David E. W. Vaughan, Materials Res. Lab., The Pennsylvania State University, Pa, USA, on *Contributions of R. M. Barrer to zeolite sorption* and, last but not least, Carmine Colella *Key dates and highlights in the life and achievements of R.M. Barrer*. Furthermore, the book *A short history of the International Zeolite Conference*, written by Carmine Colella was launched.



This book, a very priceless database, containing all technical and practical details regarding the fifteen past International Zeolite Conferences, has been a precious gift for all participants to the IZC-IMMS 2010.

The Welcome Reception was held on Sunday evening July 4<sup>th</sup>.

Prof. F. Fajula, President of the International Association (IZA), and Prof. K. Kurodeas, President of the International Mesoporous Materials Association (IMMA), attended the Opening Ceremony on July 5<sup>th</sup>. The Opening ceremony was headed by Paolo Ciambelli, University of Salerno (Italy), the Chairman of the Local Organizing Committee, Gabriele Centi, University of Messina (Italy), Chairman of IZC-16, and Girolamo Giordano, University of Calabria (Italy), Chairman of IMMS-7.

It is impossible to review all the interesting oral and poster presentations spread throughout the five-day conference. Only one out of 206 selected oral contributions was not presented.

Five Plenary Lectures were presented:

- *Synthesis of zeolites and industrial applications* by Stacey Zones, Chevron Richmond, CA, USA;
- *Mesoporous materials and new synthesis methods* by Dongyuan Zhao, Fudan University, Shanghai, China;
- *Challenge in the industrial zeolite catalysis* by Rainer Albert Rakoczy, Süd-Chemie AG, Munich, Germany;
- *Zeolites as key-components of new multifunctional nanomaterials* by Luisa De Cola, Univ. Muenster, Germany
- *Advanced characterization of micro- and meso-porous materials* by Xiaodong Zou, Stockholm University, Sweden.

Thirteen Keynotes Lectures were presented, five of which selected from the submitted abstracts. Here is the list:

- *Hierarchical organized zeolite* by Valentin Valtchev, ENSICAEN - CNRS, Caen, France;

- *Deciphering the structural information in a powder diffraction pattern* by Lynne B. McCusker, Laboratory of Crystallography, ETH Zurich, Switzerland;
- *Optically and electrically responsive periodic mesoporous organosilicas* by Shinji Inagaki, Toyota Central R&D Labs., Nagakute, Aichi, Japan;
- *CO<sub>2</sub>/CH<sub>4</sub> separation with AlPO-14 mixed matrix dense films* by Chunqing Liu, New Materials Research UOP LLC, Chicago, IL, USA;
- *A new synthesis strategy for nanostructured zeolite architectures using zeolite structure-directing functional organic surfactant* by Ryong Ryoo, Center for Functional Nanomaterials, Korea Advanced Institute for S&T, Daejeon, Korea;
- *Application of natural zeolites in environmental remediation* by Panagiotis Misaelides, Aristotle University of Thessaloniki, Greece;
- *Mesoporous materials synthesized by Co structure-directing route* by Shunai Che, School of Chemistry and Chemical Eng., Shanghai Jiaotong University, Shanghai, PR China
- *Biomass to fuels: the challenges of zeolite and mesoporous materials* by Carlo Perego, Centro Ricerche per le Energie Non Convenzionali - Eni Istituto Donegani, Novara (NO) Italy;
- *Application of carbon based nanoporous materials* by Ajayan Vinu, NIMS - IICT Materials Research Center, National Institute for Materials Science, Tsukuba, Japan;
- *Membranes and films based on zeolites* by Jesus Santamaria, Department of Chemical Engineering, University of Zaragoza, Spain;
- *Mesopores in zeolite catalysts: An industrial view on a variety of synthesis routes* by Sander Van Donk, Total Research Center, Refining & Base Chemicals Department, Feluy, Belgium;
- *Advanced zeolitic materials for synthesis of fine chemicals* by Takashi Tatsumi, Tokyo Institute of Technology, Japan;
- *Adsorption-storage properties of MOF* by Philip Llewellyn, CNRS UMR 6264, Marseille, France.



The organization of the program gave participants time to interact and develop connections. In addition to welcoming cocktail and morning and afternoon coffee breaks, a sea excursion to Positano, with dinner in a typical restaurant and entertainment with local singers and dancers, was successfully organized on Wednesday, July 7<sup>th</sup>.

On Thursday July 8<sup>th</sup> the IZA Business Meeting was organized, including the presentation of the *2010 Breck Award* assigned to Yushan Yan (University of California at Riverside) and Ryong Ryoo (Korea Advanced Institute of Science and Technology) for their respective contributions in advancing the science of zeolite in thin films and the direct synthesis of zeolite nanosheets. Lynne B. McCusker (ETH Zurich) was selected as the new *IZA Ambassador*, in recognition of the seminal contributions she has made together with Christian Baerlocher to the crystallography of zeolites and for her continuous service to the zeolite community.

At the IZA Business Meeting, the IZA membership selected the venue for the 18<sup>th</sup> IZC in 2016: Rio de Janeiro, Brazil, and also seven new Council members: Giuseppe Bellussi, Mirosław Derewinski, Eduardo Falabella, Girolamo Giordano, Tatsuya Okubo, Joaquin Perez-Pariente, Paul Wright. Furthermore. The new Executive Committee of the IZA Council was then elected as follow: Giuseppe Bellussi, President; Mingyuan He, Vice-President; Paul Wright, Secretary and Steve Wilson, Treasurer.

The Conference was concluded Friday, July 9<sup>th</sup> with closing remarks delivered by the co-Chairs G. Centi and G. Giordano.

The next International Zeolites Conference (IZC-17) will be held in 2013 in Moscow, Russia.

The 16<sup>th</sup> IZC was preceded by an intensive Pre-Conference School on "*Advanced ordered porous materials and their potential applications*", held in Maiori (Salerno), Italy, from July 2<sup>nd</sup> to July 3<sup>rd</sup>, 2010, organized by Alberto Alberti, Rosario Aiello, Ferruccio Trifirò and Paolo Ciambelli. About 50 participants took part in the two-day event, focused on discussions of the

application of advanced ordered porous materials in chemical processes. The programme included invited lectures from distinguished 3 poster presentations by young researchers.

The following lectures were delivered:

- *From zeolites to new porous materials* by Roberto Millini, Eni S.p.A. - San Donato Milanese (MI), Italy;
- *Synthesis and characterisation of aluminophosphate-based molecular sieves and their applications in adsorption and catalysis* by Paul A. Wright, University of St. Andrews, North Haugh, Scotland;
- *Hierarchical porous materials* by Mirosław Derewinski, Polish Academy of Sciences, Cracow, Poland;
- *Designed construction of advanced inorganic and hybrid organic-inorganic materials* by Clement Sanchez, Université Pierre et Marie Curie, Paris, France;
- *Mesoporous organosilica materials: Studies, applications and perspectives* by Michael Fröba, University of Hamburg, Germany;
- *Mesoporous silica thin films* by Plinio Innocenzi, University of Sassari, Italy;
- *MOF: synthesis and characterization* by Karl-Petter Lillerud, University of Oslo, Norway;
- *Potential applications of porous MOFs* by Christian Serre, Université de Versailles, France;
- *Microporous mixed OPT framework silicates and light emitting microporous mixed OPT framework silicates and MOFs* by João Rocha, University of Aveiro, Portugal;
- *Reactivity and catalytic properties of transition metals in microporous materials* by Zdenek Sobalik, Academy of Sciences, Prague, Czech Republic;
- *Microporous materials for the novel "green" synthesis of caprolactame* by Ferruccio Trifirò, University of Bologna, Italy.

Several grants were provided by International Zeolite Association (IZA) and were assigned to young researchers to encourage the participation.

The participants of the school were also encouraged to present posters on their work related to the theme of the school (27 posters were presented). The lunches and dinners were organized to encourage the participants to further discuss among themselves and with the teachers.

The school was really a pleasant event and was concluded with a final discussion chaired by School lecturers.



*Engineering of new Micro- and  
Meso-structured Materials*

*IZC-MMS-2010  
Sorrento, Naples (Italy)  
July 4th-9th, 2010*

*Additional information*

Monday July 5, 2010				Tuesday July 6, 2010				Wednesday July 7, 2010				Thursday July 8, 2010				Friday July 9, 2010				
08:00	IZA/IMMA Business				IZA/IMMA Business				IZA/IMMA Business				IZA/IMMA Business				IZA/IMMA Business			
08:30	Opening Ceremony																			
09:00	Plenary 1 (Zones)				Plenary 2 (Zhao)				Plenary 3 (Rakoczy)				Plenary 4 (De Cola)				Plenary 5 (Zou)			
10:00	Coffee break				Coffee break				Coffee break				R.M. Barrer symposium				Coffee break			
10:20	KN1	07	015	021	KN5	051	059	065	KN9	0107	0115	0121	KN12	0173	0181	0187	Valtchev KN1 McCusker KN2 Inagaki KN3 Wilson KN4 Ryoo KN5 Misael/Ides KN6 Che KN7 Perego KN8 Vinu KN9 Santamaría KN10 Van Dong KN11 Tatsumi KN12 Llewellyn KN13			
10:40		08	016	022		052	060	066		0108	0116	0122		0174	0182	0188				
11:00	O1	09	017	023	O45	053	061	067	O101	0109	0117	0123	O167	0175	KN13	0189				
11:20	O2	010	018	024	O46	054	062	068	O102	0110	0118	0124	O168	0176		0190				
11:40	O3	011		025	O47	055	KN6	069	O103	0111		0125	O169	0177	0183	0191				
12:00	O4	012	KN2	026	O48	056		070	O104	0112	KN10	0126	O170	0178	0184	0192				
12:20	O5	013	019	027	O49	057	063	071	O105	0113	0119	0127	O171	0179	0185	0193				
12:40	O6	014	020	028	O50	058	064	072	O106	0114	0120	0128	O172	0180	0186	0194				
13:00	Lunch break				Lunch break				Lunch break				Lunch break				Lunch break			
15:00	O29	KN3	037	042	IMMA General Assembly								Poster session 2 (from P-335 to P-666) + Recent Research Reports 2							
15:20	O30		038	043																
15:40	O31	034	039	KN4																
16:00	O32	035	040																	
16:20	O33	036	041	044																
16:40					O73	081	087	095	Excursion (Positano)				O195	O198	O201	O204				
16:40					O74	082	088	096					O196	O199	O202	O205				
17:00	SO	SO	SO	SO	O75	KN7	089	097					O197	O200	O203	O206				
17:20		16-30	31-45	46-58	O76		090	098					O198	O201	O204					
17:40					O77	083	091	099					O199	O202	O205					
18:00					O78	084	092	O100	Social Dinner				O200	O203	O206					
18:20	Poster session 1 (from P-1 to P-334) + Recent Research Reports 1				O79	085	093						O201	O204						
18:40					O80	086	094	KN8					O202	O205						
19:00													O203	O206						
19:20													O204							
19:40	Cocktail								Social Dinner				O205							
20:00													O206							
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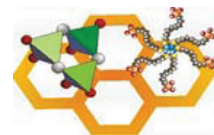
KN1 Valtchev  
 KN2 McCusker  
 KN3 Inagaki  
 KN4 Wilson  
 KN5 Ryoo  
 KN6 Misaelides  
 KN7 Che  
 KN8 Peregó  
 KN9 Vinu  
 KN10 Santamaria  
 KN11 Van Donk  
 KN12 Tatsumi  
 KN13 Llewellyn

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Association (IZA)



International Mesoporous  
Materials Association (IMMA)



Italian Zeolite  
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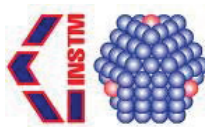
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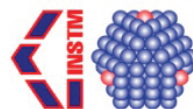
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