

4th FEZA CONFERENCE

Collège de France
PARIS, FRANCE
SEPTEMBER, 2-6, 2008

BOOK OF ABSTRACTS AND RECENT RESEARCH REPORTS





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4th FEZA Conference wish to thank all
above Institutions and Companies for
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Their contributions allowed a reduced
registration fee for students
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TUESDAY, 2 SEPT 2008

14:00-19:00	Registration	At Université P. et M. Curie (UPMC) Atrium building (see map)
18:00-21:00	Welcome Party	

4th FEZA Scientific Program	At Collège de France (see map)
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WEDNESDAY, 3 SEPT 2008

8:30-9:00	OPENING CEREMONY		
9:00-9:50	PL-01 Opening Plenary Lecture F. FAJULA		
9:50-10:40	PL-02 L. McCUSKER		
10:40-11:10	COFFEE BREAK		
	SESSION I		SESSION II
11:10-11:30 O-01	Intergrowth structure of zeolite crystals as determined by optical and fluorescence microscopy of the template-removal process L. KARWACKI, E. STAVITSKI, M. H. F. KOX, J. KORNIATOWSKI and B. M. WECKHUYSEN	11:10-11:30 O-02	A study on zeolite synthesis from diquaternary ammonium compounds; The effect of changing end-group heterocycles in the HF/SiO ₂ synthesis of molecular sieves A. JACKOWSKI, S. I. ZONES and A. W. BURTON
11:30-11:50 O-03	Fluorescent mesoporous hybrid materials for diagnostics and imaging S. TUMBILOLO, F. CATALANO, G. CAPUTO and S. COLUCCIA	11:30-11:50 O-04	Synthesis and characterization of conventional and mesoporous ZSM-5 core-shell particles for improved catalytic properties M. KUSTOVA, C. H. CHRISTENSEN, F. JOENSEN and P. BEATO
11:50-12:10 O-05	Investigation of Pt species inside NaA, NaX and NaY zeolites by using EPR, EXAFS and FTIR Y. AKDOGAN, M. BAUER and E. RODUNER	11:50-12:10 O-06	Controlling the generation of hierarchical porosity in ZSM-5 by changing the silanization degree of protozeolitic units D. P. SERRANO, J. AGUADO and A. PERAL
	LUNCH		
14:30-15:00 IL-01	Engineering photoluminescent centres into microporous lanthanide silicates and MOFs J. ROCHA	14:30-15:00 IL-02	Molecular sieve catalysts for metathesis reactions H. BALCAR, N. ŽILKOVÁ, A. ZUKAL and J. ČEJKA
15:00-15:20 O-07	Tuning pore size and acidity of aluminosilicates by spray-drying synthesis: Design of new catalysts S. PEGA, C. BOISSIERE, A. CHAUMONNOT and C. SANCHEZ	15:00-15:20 O-08	Biodiesel production by immobilized lipase on zeolites and related materials A. MACARIO, A. CORMA, M. MOLINER, U. DIAZ, J.L. JORDA and G. GIORDANO
15:20-15:40 O-09	Oriented surface growth of metal-organic frameworks on organic monolayers C. SCHERB, E. BIEMMI and T. BEIN	15:20-15:40 O-10	Oxidative desulfurization of sulfur compounds: Oxidation of thiophene and derivatives with hydrogen peroxide using Ti-beta catalyst L. NEMETH, S. R. BARE, W. RATHBUN, M. GATTER and J. LOW
15:40-16:00 O-11	A novel MOF with pcu topology constructed from cadmium and 1, 4-diazabicyclo[2.2.2] octane-N, N'-dioxide G. ZHU, S. QIU, Q. FANG and F. SUN	15:40-16:00 O-12	The effect of cations siting in Co,Ag-ferrierite on CH ₄ -NO _x -SCR P. CIAMBELLI, D. SANNINO, E. PALO, E. BALBONI, A. MARTUCCI, M.C. DALCONI and A. ALBERTI
16:00-16:20 O-13	A comparison of zeolites and Metal Organic Frameworks as storage and delivery vehicles for biologically active nitric oxide P. S. WHEATLEY, A. C. MCKINLAY and R. E. MORRIS	16:00-16:20 O-14	Degradation of pure and waste polyolefins and PVC in the presence of modified porous catalysts J. HALÁSZ, Z. KÓNYA, Z.T. FARAGO, K. SIEGERT and I. KIRICSI
16:30-18:30	POSTER SESSION I (P1) + COFFEE BREAK		

A	Synthesis and modification of microporous and mesoporous materials
B	Metal Organic Framework (MOFs), (PMO) and sol-gel materials
C	Natural zeolites
D	Adsorption, separation and diffusion
E	Films and membranes
F	Theory and modelling
G	Characterization of micro and mesoporous solid
H	Catalysis

THURSDAY, 4 SEPT. 2008

8:30-9:20		PL-03 G. FERÉY	
		SESSION I	SESSION II
9:30-9:50 O-15	Activity and acidity of SSZ-33 and SSZ-35 zeolites N. ŽILKOVÁ, B. GIL, S.I. ZONES, S.-J. HWANG, M. BEJBLOVÁ and J. ČEJKA	9:30-9:50 O-16	Synthesis and TEM investigation of single nanocrystals of polymorphs A and B of zeolite beta K. N. BOZHILOV, F. GAO and V. VALTCHEV
9:50-10h10 O-17	Metalic active species for deNO _x SCR by methane with Co and Pd/Co HFER catalysts S. CAPELA, R. CATALÃO, P. DA COSTA, G. DJÉGA-MARIADASSOU, F. RAMÔA RIBEIRO, M. F. RIBEIRO and C. HENRIQUES	9:50-10h10 O-18	Modification of the porosity of templated and amorphous carbons via KOH treatment M. ARMANDI, B. BONELLI, E.I. KARAINDROU, C. OTERO AREAN and E. GARRONE
10:10-10:30 O-19	Boosted alkylation performance of desilicated mesoporous mordenite J.C. GROEN, J.A. MOULIJN and J. PÉREZ-RAMÍREZ	10:10-10:30 O-20	Synthesis of mesoporous aromatic silica thin films and their Fluorescence properties Y. GOTO, N. MIZOSHITA, O. OHTANI, T. OKADA, T. SHIMADA, T. TANI and S. INAGAKI
10:30-11:00	COFFEE BREAK		
10:50-11:20 IL-03	Acidic functional groups incorporated in ordered mesoporous materials: a comparison among different host matrices B. ONIDA, S. FIORILLI, B. CAMAROTA, D. PERRACHON and M. BRUZZONITI	10:50-11:20 IL-04	Manganese-modified porous silicates N. NOVAK TUŠAR
11:20-11:40 O-21	Determination of Si-Al connectivity in zeolites with 2D Al→Si RAPT CP MAS CPMG Hector NMR techniques G. J. KENNEDY, M. PRUSKI and J. W. WIENCH	11:20-11:40 O-22	Synthesis of open zeolite frameworks by using a combination of bulky and cage-forming structure directing agents J. PÉREZ-PARIENTE, R. GARCÍA, A. B. PINAR, L. GÓMEZ-HORTIGÜELA, E. SASTRE and C. MÁRQUEZ-ALVAREZ
11:40-12:00 O-23	Combining high resolution scanning electron and atomic force microscopies in observation of nanometer features on zeolite surfaces S. M STEVENS, P. CUBILLAS, K. JANSSON, P. A. WRIGHT, O. TERASAKI and M. W. ANDERSON	11:40-12:00 O-24	Tailoring mesoporosity and intrawall porosity in large pore silicas: Material synthesis and sorption behavior R. GUILLET-NICOLAS, F. BÉRUBÉ, TAE-WAN KIM, M. THOMMES and F. KLEITZ
12:00-12:20 O-25	Aluminum siting in the framework of silicon rich zeolites. A ZSM-5 study J. DĚDEČEK, S. SKLENAK, CHENGBIN LI, V. GÁBOVÁ, M. SIERKA and J. SAUER	12:00-12:20 O-26	Preparation of MFI type zeolites with meso-/macrovoids as new supports for the deposition of metal clusters A. BURKAT, M. DEREWIŃSKI
LUNCH			
14:10-15:00	PL-04 M. VALLET-REGI		
15:00-15:50	PL-05 B. WECKHUYSEN		
15:50-17:50	POSTER SESSION II (PII) and RECENT RESEARCH REPORTS + COFFEE BREAK		
19:00-23:00	SAILING ON THE RIVER SEINE + BANQUET ON THE "BATEAUX MOUCHES"		

A	Synthesis and modification of microporous and mesoporous materials
B	Metal Organic Framework (MOFs), (PMO) and sol-gel materials
C	Natural zeolites
D	Adsorption, separation and diffusion
E	Films and membranes
F	Theory and modelling
G	Characterization of micro and mesoporous solid
H	Catalysis

FRIDAY, 5 SEPT. 2008

9:00-9:10	INTRODUCTION TO FEZA AWARD		
9:10-9:30	FEZA AWARD LECTURE		
	SESSION I		SESSION II
9:40-10:10 IL-05.	Periodic Mesoporous Organosilicas (PMOs): A new class of materials is coming of age F. HOFFMANN, M. CORNELIUS, J. MORELL and M. FRÖBA	9:40-10:10 IL-06.	Cooperative structure directing effects in the synthesis of crystalline molecular sieves J. PÉREZ-PARIENTE
10:10-10h30 O-27	The comparison of the crystal structures of direnzoite, a new zeolite from Massif Central (France), and its synthetic counterpart ECR-1 E. GALLI and A. F. GUALTIERI	10:10-10h30 O-28	Synthesis methodology, acidity and catalytic behavior of the 18 x 1-member ring pores ITQ- 33 zeolite M. MOLINER, M. J. DÍAZ-CABAÑAS, V. FORNÉS, C. MARTÍNEZ and A. CORMA
10:30-11:00	COFFEE BREAK		
11:00-11:30 IL-07	Synthesis strategies for the preparation of mixed micro-mesoporous materials P. J. KOOYMAN	11:00-11:30 IL-08	Search for innovative syntheses and characterisation methods of micro/mesoporous composite materials F. LAUNAY
11:30-11h50 O-29	Molecular spectroscopy of alkaline silicate solutions I. HALASZ, M. AGARWAL, R. LI and N. MILLER	11:30-11h50 O-30	Oxidation of Indole with CPO and GOx Immobilized on SBA-15 D. JUNG and M. HARTMANN
11:50-12:10 O-31	The influence of alkali cations on the structure of zeolite precursor gels investigated by positron lifetime spectroscopy S. BOSNAR, C. KOSANOVIĆ, B. SUBOTIĆ, D. BOSNAR, Z. KAJCSOS, L. LISZKAY, P. MAJOR, L. LOHONYAI, B. MOLNÁR and K. LÁZÁR	11:50-12:10 O-32	Comparison of promoted alkaline earth oxide catalysts prepared through evaporation and sol gel methods by their catalytic performance in propane oxidative dehydrogenation (ODH) D. FILKOVA, B. SAVOVA, M. CRIŞAN, M. RAILEANU and J. C. VÉDRINE
12:10-12:30 O-33	Nucleation mechanism of germanium containing zeolites: A study by electrospray ionization mass spectrometry (ESI MS) B. B. SCHAACK, W. SCHRADER and F. SCHÜTH	12:10-12:30 O-34	Rh-TPPTS/LDH - a new heterogeneous catalyst for the synthesis of functionalized γ -lactone F. IOSIF, V.I. PARVULESCU, K. TRIANAFYLLIDIS, J.-P. GENÉT and V. MICHELET
	LUNCH		
14:30-15:20	PL-06 R. MORRIS		
	SESSION I		SESSION II
15:30-15:50 O-35	Diffusion study of Al-MCM-48 material as a potential hydrotreating catalyst support L. HUANG, Q.L. HUANG, H. XIAO and M. EIC	15:30-15:50 O-36	Oxidation intermediates and reaction pathways of wet hydrogen peroxide oxidation of P- coumaric acid over (Al-Fe) pile catalyst W. NAJJAR, A. GHORBEL, S. PERATHONER and G. CENTI
15:50-16:10 O-37	Zeolite-based discriminating gas sensors S. DUNGEY, A. AFONJA, D.W. LEWIS and I. P. PARKIN	15:50-16:10 O-38	Zeolite-bentonite hybrid catalysts for the pyrolysis of woody biomass A. AHO, N. KUMAR, K. ERÄNEN, M. HUPA, T. SALMI and D. YU. MURZIN
16:10-16:30 O-39	Adsorption of CO and CO ₂ gases in large pore sized mesoporous silicas and Ag@SiO ₂ nanocomposites E. BLOCH, P. L. LLEWELLYN and V. HORNEBECQ	16:10-16:30 O-40	Modulation of zeolite acidity by post-synthesis treatments in Mo/HZSM-5 catalysts for methane dehydro aromatization A. MARTÍNEZ, E. PERIS and A. VIDAL-MOYA
16:30-16:50 O-41	Application of modified zeolites and mesoporous materials for deodorisation M. ZIOLEK, I. SOBCZAK, A. DUDZIK, Ł. KONWICKI, B. GÓRSKA and J. KUJAWA	16:30-16:50 O-42	Amino-functionalized silica nanotubes for base catalyzed reaction K.-M. CHOI, S.-C. HAN and S.-E. PARK
16:50-18:50	POSTER SESSION III(PIII)+ COFFEE BREAK		
18:30-19:30	MEETING OF THE FRENCH ZEOLITE ASSOCIATION (GFZ) AND GFZ POSTER AWARD		

SATURDAY, 6 SEPT. 2008

PL-07 M. RIGUTTO			
SESSION I		SESSION II	
8:30-9:20			
9:30-9:50 O-43	Thermodynamics study of water intrusion in hydrophobic zeolites by Monte Carlo simulation F. CAILLIEZ , I. DEMACHY, A. BOUTIN, A.H. FUCHS, M. TRZPIT, M. SOULARD and J. PATARIN	9:30-9:50 O-44	Peculiarities in the preparation and activation behaviour of hydrogen exchanged zeolite Y H. KOSSLICK , A. SCHULZ, M. BARTOSZEK, R. ECKELT, U. BENTRUP, L. FRUNZA, F. WALZ and C. JÄGER
9:50-10:10 O-45	Free energy calculation of reaction paths of the N ₂ O decomposition over Fe(II)-ferrierite L. BENCO , T. BUČKO and J. HAFNER	9:50-10:10 O-46	Post synthesis zirconia coating on the pore walls of SBA-15 mesoporous silica by ammonia/water vapour induced internal hydrolysis K.K. CHERALATHAN , H. HIRATA and M. OGURA
10:10-10:30 O-47	Going beyond SiO ₂ and AlPO ₄ ; Energetic stabilisation of 'strained' hypothetical frameworks in more exotic compositions M. A. ZWIJENBURG, F. CORÀ and R. G. BELL	10:10-10:30 O-48	Hofmeister anion effect on the formation of zeolite Beta A.V. TOKTAREV and G.V. ECHEVSKY
10:30-11:00	COFFEE BREAK		
11:00-11:30 IL-09	Multifunctional nanoporous materials and assemblies S. MINTOVA , G. MAJANO, E.-P. NG, I. YORDANOV, I. NAYDENOVA, and T. METZGER	11:00-11:30 IL-10	On the mechanism of formation of SBA-1 and SBA-3 as studied by in situ synchrotron XRD M. LINDÉN , F. BABONNEAU, H. AMENITSCH, N. BACCILE, A. RILEY and S. TOLBERT
11:30-11:50 O-49	Monocrystal-thin b-oriented silicalite-1 assemblies by molecular imprinting: from membrane to micro-reactors applications L. GÓRA	11:30-11:50 O-50	Structure determination of zeolites by electron crystallography J. SUN, D. ZHANG, Z. HE, S. HOVMÖLLER, X. ZOU , F. GRAMM, C. BAERLOCHER and L. B. MCCUSKER
11:50-12:10 O-51	Design of single-site photocatalyst (Ti, V, Cr, Mo, W) containing mesoporous silica thin films having surface super hydrophilic property Y. HORIUCHI, K. MORI, N. NISHIYAMA and H. YAMASHITA	11:50-12:10 O-52	SANS study of the mechanisms and kinetics of the synthesis of mesoporous materials from micelles of tri-block copolymers M. IMPÉROUR-CLERC , S. MANET, I. GRILLO, D. DURAND, A. KHODAKOV and V. ZHOLOBENKO
12:10-12:30 O-53	Characterization of a porous films deposited on the internal and external surfaces of catalyst particles prepared by a novel simple method F. C. MEUNIER , R. N. DEVI, T. LE GOAZIOU, C. HARDACRE, R. BURCH, P. J. COLLIER, S. E. GOLUNSKI, L.F. GLADDEN and M.D. MANTLE	12:10-12:30 O-54	Silica mesostructure formation and phase transformation in the confined space of anodic alumina membranes R. KÖHN , A. KEILBACH, A. ZÜRNER, B. PLATSCHEK, M. DÖBLINGER and T. BEIN
12:30-12:50 O-55	New Ti-containing mesoporous catalysts for mild sulphur compounds oxidation with hydrogen peroxide A. M. COJOCARIU, H. MUTIN, A. VIOUX, E. DUMITRIU, F. FAJULA and V. HULEA	12:30-12:50 O-56	Two-dimensional correlation analysis to study Brønsted acid sites in zeolites B. MOULIN , N. MALICKI and F. THIBAUT-STARZYK
12:50-13:30	CLOSING REMARKS		
OPTIONAL EXCURSION (VERSAILLES)			

- A** Synthesis and modification of microporous and mesoporous materials
- B** Metal Organic Framework (MOFs), (PMO) and sol-gel materials
- C** Natural zeolites
- D** Adsorption, separation and diffusion
- E** Films and membranes
- F** Theory and modelling
- G** Characterization of micro and mesoporous solid
- H** Catalysis

PIII-G33 COPPER EXCHANGED SILICALITE-1: EVIDENCE OF THE LOCATION OF COPPER OXIDE NANOCLUSTERS IN THE SUPERMICROPORES OF S-1

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In the S-1 structure, besides the pores typically represented by the MFI framework channels (0.5-0.6 nm), there are some others significantly wider (0.8 – 2 nm) called 'supermicropores' that can be created by Si(IV) vacancies during the synthesis. The presence of supermicropores can be checked by the appearance of a low-pressure hysteresis loop in the N₂ adsorption-desorption isotherm at 77 K which is clearly not attributable to capillary condensation. This hysteresis is due to a "secondary" process of the N₂ adsorption that proceeds in the 'supermicropores' via the so called quasi-multilayer adsorption and it can extent up to N₂ relative pressure (P/P₀) = ca. 0.2. In the present contribution we report the results of a study on the texture features of the silicalite S-1 before and after the introduction of copper (1.38 % wt) by a standard ion-exchange procedure. Evidence is given that the porosimetric analysis is able to reveal (i) the presence of supermicropores, created by Si(IV) vacancies during the synthesis of silicalite S-1, and (ii) the entrapment of metal oxide clusters in these cavities. These clusters are very likely characterized by a low nuclearity, as suggested by the X-ray diffraction (XRD) and diffuse reflectance (DRS) analysis. Indeed the sharp reduction of the low-pressure hysteresis loop in the Cu-S-1 sample associated to a decreasing, with respect to the parent material, of both the total (BET) surface area and the micropore volume support the picture that the Cu cluster of low nuclearity are confined in the supermicropores of S-1.

PIII-G34 A KINETIC STUDY OF THE THERMAL DEGRADATION OF CETYLTRIMETHYL AMMONIUM BROMIDE INSIDE THE MESOPOROUS SBA-3 MOLECULAR SIEVE

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An efficient removal of the organic component from the as-synthesized solid in order to access the internal free space is an important step in the final preparation of the porous materials. Recently, kinetic studies of the cetyltrimethylammonium bromide (CTMAB) removal from the MCM-41 and MCM-48 have shown that the CTMAB removal proceeds by very high activation energy indicating that the interactions of the CTMAB with silica framework are very strong. Preparation of mesoporous SBA-3 proceeds also in the presence of CTMAB; however, in contrast to the synthesis of MCM-41 and MCM-48 which is carried out under alkaline conditions, crystallization of the SBA-3 occurs in strongly acidic solution. This causes the interaction of CTMAB with the SBA-3 network to be different from its interaction with the MCM network since the SBA-3 network is electrically neutral while the MCM network is negatively charged. Thermal degradation of CTMAB inside the mesoporous SBA-3 has been studied under non-isothermal conditions. There are two distinct kinetic processes, which can be described by the Sestak-Berggren model. The main decomposition step proceeds with $E_a = 116 \pm 2$ kJ/mol which is significantly lower than for the MCM-41 and MCM-48, suggesting that the interaction between CTMAB and the silica network is the dominant factor in the removal of the surfactant. The second decomposition step has a higher E_a value (153 ± 5 kJ/mol) than the first step, indicating that it is primarily controlled by the size of the pore openings.