

Operando-II					
Toledo (Spain)					
Sunday 23, April 2006	Monday 24	Tuesday 25	Wednesday 26	Thursday 27	
Arrival to Toledo	9:00 PL2	9:00 PL3	9:00 PL4		
				9:30 Key-5	
				9:55 O29	
	10:00 O3	O12	10:00 Key-3	10:20 O30	
	10:25 O4	O13	10:30 O21	10:45 Coffee	
	10:50 O5	O14	10:55 O22		
	11:15 Coffee break / Sponsors exhibition			11:20 O31	
	12:00 O6	O15	O23	11:45 O32	
	12:25 O7	O16	O24		
	12:50 O8	O17	O25		
	Documentation pick-up & Registration	13:30 Lunch			Lunch
					School of spectroscopy
15:30 Key-1		Key-2	Key-4		
16:00 O9		O18	O26		
17:00 WELCOME	16:25 O10	O19	O27	Horiba Jobin Ybon	
17:15 PL1	16:50 O11	O20	O28		
18:15 O1	18:30 Poster / Sponsors exhibition				
18:40 O2					
19:30 Welcome Cocktail	19:30 Cocktail				
Social event to be determinated Plenary: 1hour (50+10) Key Note: 30min (25+5) Oral:25 min (20+5)	21:00 Social		21:00 Dinner		



Plenary lectures

- | | | |
|-------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Pl 1 | Why all the fuss about in situ Spectroscopy? | Sir John M. Thomas |
| Pl 2 | Catalysts live and up close: Snapping catalysts at work | Bert M. Weckhuysen |
| Pl 3 | Hunting intermediate species by operando IR spectroscopy | Marco Daturi |
| Pl 4 | Molecular Studies of the Mobility of Atoms, Molecules and Electrons at the Active Catalyst Surface under Reaction Conditions | Gabor Somorjai |

Keynote lectures

- | | | |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Key1 | Application of multinuclear MRI and solid state MRI in heterogeneous catalysis | <i>A.A. Lysovaa, I.V. Koptug, R.Z.Sagdeev, V.N. Parmon</i> |
| Key2 | Possibilities and limitations of spectroscopic techniques for operando and in situ studies on gas sensors: an attempt of review | <i>Alexander Gurlo</i> |
| Key3 | Fluorescence microscopy as <i>in situ</i> characterization technique in the field of heterogeneous catalysis | <i>M. Roeffaers; B. Sels; F. De Schryver; P. Jacobs; D. De Vos; J. Hofkens</i> |
| Key4 | Combined ATR-IR and UV-Vis spectroscopy for mechanistic studies of catalytic reactions at solid-liquid interfaces | <i>Igor Dolamic, Marco Bieri, Cyrille Gautier, Thomas Bürgi</i> |
| Key5 | <i>In situ</i> monitoring of catalyst synthesis and reactions at elevated pressure using a new spectroscopic batch reactor cell for X-ray absorption spectroscopy | <i>J.-D. Grunwaldt, M. Ramin, M. Rohr, A. Michailovski, G.R. Patzke and A. Baiker</i> |



Oral

- O1** Design and Operation of a High Pressure in situ XAFS Reaction Cell
Simon R. Bare, George E. Mickelson, Frank S. Modica and Ning Yang
- O2** Operando spectroscopic study of benzyl alcohol oxidation in supercritical CO₂ using infrared and X-ray absorption spectroscopy
Matteo Caravati, Jan-Dierk Grunwaldt, Alfons Baiker
- O3** Smart Combinatorial Operando Spectroscopy Catalytic System
Israel E. Wachs and Sukwon Choi
- O4** One step closer to an operando dream machine: Adding a third dimension to an operando spectroscopic setup by combining UV-Vis, Raman and XAFS for the study of metal oxide catalysts
Andrew M. Beale, Ad M.J. van der Eerden, Kaisa Kervinen, Mark A. Newton and Bert M. Weckhuysen
- O5** EPR/UV-vis/Raman and XRD studies of Mo-V polyoxometallates during calcination and selective oxidation of isobutane – The problem of active
A. Brückner, D. Herein, U. Bentrup, M. Kant, S. Kolf, U. Dingerdissen, H. Zanthoff
- O6** Understanding the dynamic behaviour of supported Rh nanoparticles interacting with H₂ and NO using synchronous dispersive EXAFS, infrared spectroscopy, and mass spectrometry on a timescale of tens of milliseconds.
M. A. Newton, A. J. Dent, S. G. Fiddy, B. Jyoti and J. Evans
- O7** Raman Spectroscopy of Alumina-Supported Vanadia Catalysts for Butane Dehydrogenation
Zili Wu, Hack-Sung Kim, Peter C. Stair
- O8** Effect of alkaline promoters on the V₂O₅/TiO₂ catalyst
H. Si-Ahmed, M. Calatayud, C. Minot, E. Lozano Diz, A. E. Lewandowska and M. A. Bañares
- O9** High Pressure NMR spectroscopic studies on hydroformylation catalysts using a new, easy to apply experimental setup
Detlef Selent, Wolfgang Baumann, Klaus-Diether Wiese, Armin Börner
- O10** Operando chemical reactor for studying heterogeneous catalysis by NMR: MASCAT probe
I.Nuta, K.Thomas, J-P.Cognez, C.Fernandez, B.Knott, F.Engelke
- O11** Coupling step scan IR and pulsed laser for operando at 33ns in catalysis
Etienne SEGUIN, Frédéric THIBAUT-STARZYK, Heike ARNOLDS
- O12** A modified commercial DRIFTS cell for kinetically relevant operando studies
F.C. Meunier, D. Reid, S. Shekhtman, D. Tibiletti, A. Goguet, C. Hardacre and R. Burch



- O13** Transient kinetic studies of CO oxidation over Au catalysts by operando FTIR and Product Analysis
Bong-Kyu Chang, Sheng Dai and Steven H. Overbury,
- O14** NO-assisted N₂O decomposition with Fe-Ru-FER: An in operando XAS and IR spectroscopic study of the synergy between Fe and Ru
Gerhard Pirngruber, Johannis A.Z. Pieterse
- O15** Operando IR, In-situ EXAFS and Activity Studies of the Effect of S on Pt Supported Catalysts during CO Oxidation
F. Gracia, S. Guerrero, E. E.Wolf, J. T. Miller, and A. J. Kropf
- O16** Combination of in situ XANES at the S-K edge and IR spectroscopy to study the mechanism of sulphur storage under lean/rich reaction conditions.
H.Dathe, P. Haider, A. Jentys, J.A. Lercher
- O17** The Effect of Water on the Adsorbed NO_x species over BaO/Al₂O₃ NO_x Storage Materials: A Combined FTIR and In Situ Time-Resolved XRD Study
János Szanyi, Do Heui Kim, Ja Hun Kwak, Charles H.F. Peden and Jonathan C. Hanson
- O18** Electron Paramagnetic Resonance (EPR) in understanding semiconductor gas sensing mechanism.
Franca Morazzoni, Mariachiara Mattoni, Roberto Scotti
- O19** Reaction characterisation by a combination of spectroscopic and reaction calorimetric data
Clemens B. Minnich*, Marcel A. Liauw
- O20** Characterization of the H₂ and CO sensing mechanism of Pd- promoted SnO₂ by XAS in operando conditions.
O.V.Safonova, B.Chenevier, A.M. Gaskov, and M.Labeau
- O21** Shining Light on Surface Reactions
Adam F. Lee and Karen Wilson
- O22** Application of high-pressure gas-phase X-ray photoelectron spectroscopy to the investigation of catalytic properties of copper in methanol oxidation
V. I. Bukhtiyarov, H. Bluhm, I.P. Prosvirin, M. Hävecker, E. Kleimenov, A. Knop-Gericke and R. Schlögl
- O23** Operando studies of alumina-supported oxomolybdates for methanol selective oxidation
Sylvain Cristol, Mickael Capron, Christophe Dujardin, Anne-Sophie Mamede, Karim Hamraoui, Jean-François Paul, Edmond Payen
- O24** In-situ FTIR spectroscopy of key intermediates in the first stages of ethylene polymerization on the Cr/SiO₂ Phillips catalyst: solved the puzzle of the initiation mechanism?
E. Groppo, C. Lamberti, S. Bordiga, G. Spoto, A. Zecchina



- O25** Combining computational and operando spectroscopies joint with molecular modeling to discriminate between spectator and intermediate species – deNOx Cu/ZSM-5 catalyst case study
- O26** Coinstantaneous in situ FTIR / UV-Vis analysis of interaction of N₂O and NO with Fe- and Fe/Pt-FER under concentration-programmed regime
- O27** An operando UV-vis study of Cu-ZSM-5: monitoring the active site during the reaction of methane into methanol.
- O28** Combined in situ FT-IR and TRM analysis of the NOx storage properties of Pt-Ba/Al₂O₃ LNT catalysts
- O29** In-Situ ATR-IR study of CO oxidation on Pt/Al₂O₃ in aqueous solution. Mimicking support effect by pH variation.
- O30** X-ray diffraction study of Co₃O₄ activation under ethanol steam-reforming
- O31** Mechanism of Methanol Adsorption-Reaction over Gallium Oxides Through Molecular Spectroscopy and In Situ TPSR Analysis
- O32** ATR-FTIR analysis of liquid-phase hydro/dehydrogenation of the naphthalene/ decalin pair over supported Pd catalysts
- Piotr Pietrzyk¹, Barbara Gil¹, Zbigniew Sojka
- Z. Sobalík, K. Jíša, A. Vondrová, B. Bernauer
- Pieter J. Smeets, Marijke H. Groothaert, Robert A. Schoonheydt.
- F. Frola, F. Prinetto, G. Ghiotti, I. Nova, L. Lietti, P. Forzatti
- Sune D. Ebbesen, Barbara L. Mojet, Leon Lefferts
- Víctor A. de la Peña O'Shea, Narcís Homs, Jordi Llorca, Pilar Ramírez de la Piscina Sebastián E. Collins, Miguel A. Baltanás, Adrián L. Bonivardi, Laura E. Briand, Luis A. Gambaro
- Y. Zhang-Steenwinkel, S.A. Tromp, G. Mul, J.A. Moulijn



Posters

- P1** New insights in the catalytic combustion on Pd/Zr-SiO₂, Pd/SiO and Pd/?-Al₂O₃ catalysts using operando DRIFTS studies
- P2** High pressure CO adsorption on Au(110) studied by STM and PM-IRRAS under operando conditions
- P3** An FT-IR study of the adsorption of isopropanol on calcined Layered Double Hydroxides containing isopolimolybdate
- P4** Band-gap energy of Mo (V)-P-O catalysts with Keggin structure relates to counter-cations and temperature studied by UV-VIS-DRS spectroscopy
- P5** Redox properties of Mo (V)-P-O catalysts with Keggin structure studied by UV-VIS-DRS spectroscopy
- P6** Selective catalytic reduction of NO by methane over Co-H-MFI: an operando FT-IR study
- P7** Catalytic production of H₂ by steam reforming: evidences of a mechanism via operando IR spectroscopy
- P8** Molecular Structure and Catalytic Activity of Supported Molybdena Catalysts for the ODH of Ethane
- P9** A complex view on the role and nature of silver species operating at selective catalytic reduction of NO over silver alumina
- P10** Nano-SnO₂-MoO₃ binary system for gas sensors
- P11** EPR "in situ" investigation of ion-radical intermediates and active sites on oxide catalysts
- P12** In-situ XPS study on (MoV)₅O₁₄ selective oxidation catalysts
- S.R.G. Carrazána, R.M. Blancoa, C.Mateos-Pedrerob y P. Ruíz M.A. Languille, F.J. Cadete Santos Aires, Y. Jugnet, C. Deranlot, J.C. Bertolini
D. Carriazo, C. Martín, V. Rives
V. Sasca, A.Popa and N. Jaeger
V. Sasca, A.Popa and N. Jaeger
Tania Montanari, Olivier Mariea, Marco Daturi and Guido Busca
Christelle Verrier, Philippe Bazin, Olivier Marie, Marco Daturi
A. Christodoulakis, S. Boghosian
P. Sazama, B. Wichterlová, Z. Sobalík, J. D!de"ek
J. Arbiol, J.R. Morante, E.A. Makeeva, M.N. Rumyantseva, A.M. Gaskov
Alexander M. Volodin, Alexander F. Bedilo
P.Schnörch, E. M. Vass, S. Zaferiatos , D.Teschner, M. Hävecker



- P13** Preferential CO oxidation in H₂ (PROX) on Pt/CeO₂, high-pressure XPS and in-situ DRIFTS study
A.Wootsch, D. Teschner, O. Pozdnyakova, J. Kröhnert, B. Steinhauer, Z. Paál, E. Vass, M. Hävecker, S. Zefeiratos, P. Schnörch, H. Sauer, F. C. Jentoft, A. Knop-Gericke, R. Schlögl
- P14** Axial and 2D-Mapping of the Catalyst Structure in a Fixed-Bed Catalytic Reactor: Partial Oxidation of Methane over Supported Noble Metal Particles
J.-D. Grunwaldt, S. Hannemann, C.G. Schroer, and A. Baiker
- P15** New spectroscopic evidence of selective hydrogenation of aliphatic triple bond on palladium catalysts: Is palladium metal the active phase?
D. Teschner, E. Vass, M. Hävecker, S. Zefeiratos, P. Schnörch, H. Sauer, A. Knop-Gericke, R. Schlögl
- P16** Combined in situ XPS and in situ XAS study of Cu/ZnO catalysts for methanol steam reforming
M. Hävecker, B.L. Kniep, E. Kleimenov, P. Schnörch, D. Teschner, S. Zafeiratos, H. Bluhm, A. Knop-Gericke, T. Ressler, R. Schlögl
- P17** In Situ XRD and In Situ XANES Study of Mo₂C Formation
Edwin L. Kugler, Christopher H. Clark, Dady B. Dadyburjor and Jonathan C. Hanson
- P18** Study of Propane and Propene Interactions with Potassium Promoted Vanadia Alumina Catalysts by TAP and Operando Raman Spectroscopy
G.Mula, B. vanderLinden, J.A. Moulijn, G.G. Cortez, S.J.Khatib, M.A.Bañares
- P19** The nature of the active site in the Fe-ZSM-5/N₂O system studied by X-ray emission and X-ray absorption spectroscopy
Gerhard Pirngruber, Jan-Dierk Grunwaldt, Pijus Roy, Jeroen van Bokhoven, Olga Safonova, Pieter Glatzel
- P20** the role of formate groups in the mechanism of methanol synthesis from H₂/CO₂ over a Pd/Ga₂O₃ catalyst
S. E. Collins, M. A. Baltanás, Adrian Bonivardi
- P21** Carbons/ZnO nanocomposites: characterization by means of combined use of micro Raman and SEM
F Cesano, D. Scarano, S. Bertarione, F. Bonino, A. Damin, S. Bordiga, A. Zecchina and A. Brooker



- P22** In situ investigations of the formation of a $(\text{MoVW})_5\text{O}_{14}$ type mixed molybdenum oxide catalyst
E. Rödel, R. Schlögl, T. Ressler
- P23** Cu-Co metal alloy in CO_2 electroreduction: Simultaneous enhancement of selectivity and durability
H. Shibata, R. Brand G. Mul, V. Rosca, M.T. Koper, J.A. Moulijn
- P24** Simultaneous UV-Vis/FTIR study of the formation of Co(II)-NH_3 complexes in silicon rich zeolites
Z. Sobalík, J. Dedecek, K. Jíša, H. Jirglová, B. Bernauer J. Heyrovský
- P25** Immobilization of enzymes on an ATR crystal for IR spectroscopy
S.A.Tromp, Y. Zhang-Steenwinkel, G. Mul, M.Kreutzer, J.A.Moulijn
- P26** IN SITU ESR STUDIES OF Ni PARTICLES IN BIMETALLIC Ni-Re CATALYSTS
E.H. Ismailov , D.B.Tagiyev, M.I.Rustamov
- P27** Influence of annealing temperature on the CO sensing mechanism for tin dioxide based sensors – operando studies
D. Koziej, K. Thomas, N. Barsan, F. Thibault – Starzyk, J.Szuber, U.Weimar
- P28** The electronic responses of MOS thick films to different atmospheres measured by in situ FT-IR spectroscopy.
S. Morandi, M. Di Martino, G. Ghiotti
- P29** Combined high pressure XPS and PTRMS study of ethylene epoxidation over silver
V. I. Bukhtiyarov, A.I. Nizovskii, H. Bluhm, M. Hävecker, E. Kleimenov, A. Knop-Gericke and R. Schlögl
- P30** Adsorption of methanol as a probe for surface characteristics of zirconia, alumina and zirconia/alumina supported chromia catalysts
Satu T. Korhonen , Miguel A. Bañares , A. Outi I. Krause
- P31** A comprehensive study of the high-pressure sulfidation effect on the active sites of $\text{CoMo(P)/Al}_2\text{O}_3$ sulfide catalysts
M-A Lélias, C. Dujardina,b, S. Aielloa, J. van Gestela and F. Maugéa
- P32** The SCR of NO with CH_4 over Co-, Co,Pt-, and H-mordenite catalysts
F. Lónyi, J. Valyon, L. Gutierrez, M. A. Ulla , E. A. Lombardo
- P33** Operando FTIR study of the photocatalytic oxidation of methylcyclohexane and toluene vapors: Influence of Zr incorporation in the TiO_2 lattice
M. D. Hernández-Alonso, J. M. Coronado, I. Tejedor-Tejedor, J. Soria1, M. A. Anderson



- P34** In-Situ Thermo-Raman Study of Titanium Oxide Nanotubes
M.A. Cortés- Jácome, G. Ferrat-Torres, L. F. Flores Ortiz, C. Angeles-Chavez, E. López Salinas, J. Escobar Aguilar, J.A. Toledo-Antonio
- P35** Structural transformations of supported vanadia catalysts under reduction - reoxidation cycles by TPR/TPO-Raman.
A. E. Lewandowska, M. A. Bañares
- P36** Probing Elementary Steps under Reaction Conditions Using Reflection Absorption Infrared Spectroscopy
Florencia Calaza, Luke Burkholder, Dario Stacchiola and Wilfred T. Tysoe.
- P37** Mid-infrared monitoring of catalyst synthesis and reactions by using a novel fiber-optical diamond ATR sensor
Ursula Bentrupa, Lukas Küpperb, Uwe Buddec, Kai Lovisc, Klaus Jähnisch
- P38** Operando ESR spectroscopic study of the mesostructural transformation of the vanadium species by thermal treatment during hybrid mesoporous oxide catalysts calcination process
Rodica-Mirela Ni!" and Aurelia Meghea
- P39** In situ Synchrotron Small-Angle X-ray Scattering Study of the Crystallisation of Mesoporous MCM-41 using Gemini Surfactants.
aE.Gianotti, aG. Berlier, aK. Costabello, aS. Coluccia and bF. Meneau
- P40** In situ spectroscopic investigation of heterogeneous catalysts and reaction media at high pressure using infrared spectroscopy
J.-D. Grunwaldt, M.S. Schneider, M. Caravati, and A. Baiker
- P41** SFG and PM-IRAS spectroscopy on Pd-Al₂O₃ and Pd(111): partial methanol oxidation and CH_x promotion (?) at ambient pressure
G. Rupprechter, M. Borasio, M. Morkel, H.-J. Freund
- P42** Operando studies of nanostructured copper-ceria catalysts for hydrogen purification processes
A. Martínez-Arias, D. Gamarra¹, C. Belver, M. Fernández-García, X.Q. Wang, J.C. Hanson, J.A. Rodríguez
- P43** Structure-activity relationships in vanadia-ceria catalysts during ethane oxidation to ethylene by operando Raman-GC analyses
M. V. Martínez-Huerta, G. Deo, J.L.G. Fierro, I. E. Wachs, M. A. Bañares
- P44** PM-IRRAS for operando measurements during hydrogenation reactions on Pt and Pt₃Sn (111)
Y. Jugnet, J.C. Bertolini



- P45** In situ ATR-IR study of surface species during heterogeneous base-catalyzed Knoevenagel reaction
Ronny Wirz, Davide Ferri, Alfons Baiker
- P46** The application of diffuse reflectance infrared spectroscopy and temperature-programmed desorption to evaluate how modifications to the acid site distribution of γ -alumina catalysts can perturb reactivity profiles.
Alastair R. McInroy, John M. Winfield, Chris C. Dudman, Peter Jones and David Lennon1.
- P47** Control of Nanosized Titania Synthesis
C. Belver, M. Fernández-García, X.Q. Wang, J.C. Hanson, J.A. Rodríguez Alwies W.A.M. van der Heijden, Virginie Bellière, Leticia Espinosa Alonso, Marco Daturi, Olga V. Manoilova, and Bert M. Weckhuysen
- P48** Catalytic destruction of CCl_4 on lanthanum-based solids: Linking activity to acid-base properties
Enhong Cao, Steve Firth and Asterios Gavriilidis
- P49** Application of microreactors for in situ Raman studies in catalytic oxidation of methanol to formaldehyde on silver
Heiko Oosterbeek, Gerhard Beitel
- P50** CO Adsorption on Pt(111) at High CO Pressure and High Temperature Studied With Polarization Modulation Reflection Absorption Infrared Spectroscopy)
T.A. Nijhuis, E.S. Sacaliuc, T. Visser, and B.M. Weckhuysen
- P51** A Spectroscopic Mechanistic Study into the Epoxidation of Propene over Gold-Titania Catalysts
Gemma GUILERA, Mark NEWTON
- P52** Revealing the secrets of Pd-based catalysts involved in cross-coupling reactions by time-resolved EDE and SAXS operando experiments
M.O. Guerrero-Pérez, I. Malpartida, M.C. Herrera, M.A. Larrubia, L.J. Alemany and M.A. Bañares
- P53** Operando study of the dynamic states of supported Mo-V-W-O catalysts for propane oxotransformation
A Amierio, P Gardner, R Torbati, B H Sakakini and K C Waugh
- P54** The Determination of Desorption Rate Constants By Monitoring of the time Dependence of the Decay of Infrared Bands – Dynamic Infrared Spectroscopy
Yu-Ting Cheng and Jeffrey C. S. Wu
- P55** In situ FT-IR Study of Photo-assisted NO Oxidation on Photocatalyst



- P56** Monitoring the Structure of Water Soluble Silicates
Istvan Halasz, Mukesh Agarwal, Runbo Li, Neil Miller
- P57** Vanadium supported catalyst doped with alkali metals, an operando study with methanol as a probe molecule
E. Lozano Diz, M. A. Bañares
- P58** Direct transformation of methane and ethane into useful oxygenates over calcium exchanged Y, MOR and ZSM5 zeolites observed by in-situ IR spectroscopy
Barbara L. Mojet, Jiang Xu and Leon Lefferts
- P59** Molecular Engineering of Multicomponent Supported Metal Oxide Catalyst for Selective Oxidation of CH₃OH to (CH₃O)₂CH₂
Gregory K. Lapp, Carolyn L. Waite and Javad Tavakoli
- P60** Approaching the real conditions of a NO_x-trap reaction via operando IR spectroscopy
A. Lahouguea, P. Bazina, O. Mariea, G. Blanchardb, V. Harléb, V. Rossiterc, M. Daturi I. Malpartida, M.O. Guerrero-Pérez, C. Herrera, M.A. Larrubia and L.J. Alemany
- P61** Reduction-stage Study of NO_x-SR catalysts with different formulations by FTIR “in-situ”
Davide Ferri and Alfons Baiker
- P62** Real-time investigation of surface species during liquid-phase heterogeneous catalytic reactions
- P63** DRIFTS-XANES study of PdNi/(Ce,Zr)O_x/Al₂O₃ model automotive catalysts
A. Martínez-Arias, M. Fernández-García, A.B. Hungria¹, A. Iglesias-Juez, J.A. Anderson, J.C. Conesa
- P64** The Cr/SiO₂ Phillips catalyst: a Raman study.
A. Damin, F. Bonino, E. Groppo, S. Bordiga, C. Lamberti, and A. Zecchina
- P65** Performance of Pd/Al₂O₃ in liquid-phase heterogeneous monitored by ATR-IR spectroscopy
Davide Ferria, Csilla Keresszegia, Cecilia Mondellib, Rinaldo Psarob and Alfons Baikera
- P66** Deactivation of Beta Zeolite in Friedel-Crafts acetylation : an Operando Infrared Study
Alexandre VIMONT, Frédéric THIBAUT-STARZYK, Roland JACQUOT
- P67** The influence of reaction conditions on composition and catalytic performance of VO_x-based catalysts in the oxidative dehydrogenation of propane
Olga Ovsitser and Evgueni Kondratenko



- P68** Time-resolved simultaneous monitoring of surface and gas phase species and surface properties by modulation excitation PM-IRRAS
Atsushi Urakawa, Thomas Bürgi†, Alfons Baiker
- P69** In situ XAFS studies of Cr in HTS catalysts
A. Puig-Molina, A. M. Molenbroek, B.S. Clausen
- P70** Structural effects of P on the stabilization of surface chromium oxide species on alumina during propane oxidative dehydrogenation
Sheima J. Khatib, Miguel A. Bañares
- P71** Bulk structural investigations of Cu/ZnO/Al₂O₃ catalysts for steam reforming of methanol
P. Kurr, R. Schlögl, T. Ressler
- P72** Operando study of two optimised catalysts in oxidative steam reforming of bio-ethanol using DRIFT spectroscopy
O. Akdim, H. Provendier, V. Fierro, C. Mirodatos
- P73** X-ray studies of solid heteropoly acid catalysts for clean synthesis
Karen Wilson*, Andrew D. Newman & Adam F. Lee.
- P74** Operando DRIFTS spectroscopy characterization of NaBH₄ reduced Au/NaHY and Operando EXAFS/XANES analysis of gold-copper ion mixtures in TiO₂ (anatase)
T. Magadzu, J. H. Jang, J. D. Henao, M. C. Kung, H. H. Kung and M. S. Scurrall
- P75** NO₂ response time activation energy studies in gas sensors using different WO₃ nanostructured sensing material.
E. Rossinyol, J. Arbiol, F. Peiró, J.R. Morante
- P76** Effect of Na- Addition on the Low-Temperature Oxidation of CO over SnO₂-based Catalysts
Burcu Mirkelamoglu, Gurkan Karakas
- P77** A density functional theory study of ethylene adsorption on Ni(111), Ni(100) and Ni₁₃ nanocluster surfaces
Isik Onal, Asli Sayar, Selim Senkan
- P78** Activation of C-H bond of ethane by pure and Fe and Al doped silica: A density functional study
Mehmet Ferdi FELLAH, Isik ONAL, Selim SENKAN
- P79** The mechanism of oxidative cracking of mazuts on the catalysts from the natural alumosilicates
R.Kh. Ibrasheva
- P80** PARTIAL OXIDATION OF ETHANE OVER MOLYBDENUM BASED CATALYST MODIFIED BY VANADIUM AND/OR PHOSPHORUS
N. HADDAD; E. BORDES-RICHARD L. HILAIRE and A. BARAMA



- P81** CO₂-reforming of methane on rhodium, palladium, nickel and cerium catalysts supported on algerian pillared clays intercalate by iron and aluminium
- P82** Catalytic reforming of methanol to produce hydrogen
- P83** Benzoylation of aromatics on tin-mesoporous molecular sieves materials
- P84** Benzaldehyde hydrogenation over supported nickel catalysts
- P85** 1, 2, 4-Trimethylbenzene transformation over FCC catalyst in a fluidized bed reactor: Effect of catalyst Acidity
- P86** Effect of iron position in heterophosphomolybdates on the selective oxidation of toluene
- P87** DEHYDROCYCLIZATION OF n-HEXANE OVER HETEROPOLYCOMPOUNDS
- P88** LOW TEMPERATURE SHIFT REACTION CuO/ZnO/Al₂O₃ CATALYST / PREPARATION AND X-RAY SPECTROSCOPIC STUDY.
- P89** On the Reversibility/Irreversibility of the Effects of Pressure and Temperature on the Heterogeneous Catalytic Systems: In situ vibrational spectroscopy of NO/Pd (111) at 400 mbar
- P90** Plasma catalysis of Ar-N₂/NO/CH₄/O₂ mixtures
- P91** XPS Study of plasma interactions with graphite of interest for de-NO_x processes
- P92** Catalytic activity and characterization of the surface acid sites of tungstated zirconia; Influence of the initial state of the zirconia support
- Barama S., Mohammedi O. , Batiot C., Tatibouët J.M.
- Zahira Yaakob, Lorna Jeffery Minggu., Wan Ramli Wan Daud, Abu Bakar Mohamad K. Bachari , O.Cherif
- A. Saadi, R. Merabti Z. Rassoul and M. M. Bettahar
- S. Al-Khattaf
- B. Djebbari, C. Rabia M. M Bettahar , S. Hocine
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