

Engineering Conferences International

Chemical Reaction Engineering IX

**Chemical Reactor Engineering:
Meeting the Challenges for New Technology
June 29-July 4, 2003**

The Radisson Hotel, Quebec City, Quebec, Canada

PRELIMINARY PROGRAM

- *All meals will be served in the dining room except for Thursday's Dinner*
- *All technical Sessions in the Sala Congressi (2nd Floor - up the marble stairs)*
- *Coffee breaks if weather permits in the terrace overlooking the valley. Back up 1st floor lobby area.*
- *Social Hours will be in the private bar*

Conference Themes:

- I. Computational Fluid Dynamics in Reactor Engineering***
- II. Modeling in Reactor Engineering***
- III. Environmental Reaction Engineering***
- IV. Catalytic Processes***
- V. Multifunctional Reaction Engineering***
- VI. Multiphase Chemical Reactors***
- VII. Green Chemistry***

Updated: June 8, 2003

Sunday June 29, 2003

16:00 – 18:00	<i>Registration</i>
18:00-18:30	<i>Welcome Reception</i>
18:30 – 20:00	<i>Dinner</i>
20:00 – 20:15	<i>Opening remarks</i> Hugo de Lasa, Conference Co-Chair Herman Bieber, United Engineering Foundation Liaison
20:15 - 21:15	<i>Social Hour</i>

Monday June 30, 2003

07:00 - 08:15	<i>Breakfast Buffet (Dining Room)</i>
08.15-08:30	<i>Conference Welcome and Overview</i> <i>Conference Chair and ECI Representative</i>

SESSION I: THEMES I AND II		
COMPUTATIONAL FLUID DYNAMICS and MODELLING IN REACTOR ENGINEERING		
08:30 - 09:15 <i>Theme I</i>	<p>"MODELLING OF FLUIDIZED BED REACTORS"</p> <p>Authors: J. Werther and E. Hartge Affiliation: University of Hamburg Germany</p>	
09:15 - 09:30	<i>Discussion Period – Questions and Answers</i>	
09:30 - 10:00	<i>Coffee Break</i>	
10:00 - 10:45 <i>Theme II</i>	<p>"CFD SIMULATION OF GAS-SOLID BED REACTORS"</p> <p>Author: H. Arastoopour Affiliation: Illinois Institute of Technology, USA</p>	
10:45 - 11:00	<i>Discussion Period – Questions and Answers</i>	
	THEME I	THEME II
	COMPUTATIONAL FLUID DYNAMICS IN REACTOR ENGINEERING	MODELLING IN REACTOR ENGINEERING
11:00 - 11:15	<p>27 - SIMULATION OF FCC STRIPPER HYDRODYNAMICS USING COMPUTATIONAL FLUID DYNAMICS</p> <p>Timothy R. McKeen, University of Saskatchewan Department of Chemical Engineering, Saskatoon, Saskatchewan, S7N 5C5, Canada T: 306 966 4761, F: 306 966 4777, trm777@mail.usask.ca</p> <p>Todd S. Pugsley, University of Saskatchewan</p>	<p>16 - SIMULATION AND CONTROL OF FCC UNITS WITH TWO REGENERATION STAGES</p> <p>Arandes, Jose M., Universidad del Pais Vasco UPV-EHU, Dpto. Ingenieria Quimica, Apdo. 644, Bilbao, Vizcaya, 48080 Bilbao, Spain, T: +34-946012511, F: +34-944648500, iq paresj@lg.ehu.es</p> <p>Azkoiti, Miren J., Dept. Ingenieria Quimica y del Medio Ambiente. UPV-EHU, Bilbao, J., Dept. Ingenieria Quimica. UPV-EHU</p> <p>de Lasa, Hugo I., CREC. University of Western Ontario</p>
11:15 - 11:30	<p>34 - EULERIAN/EULERIAN CFD SIMULATION OF A COLD FLOWING FCC RISER</p> <p>Kim Granly Hansen, Chemical Engineering Laboratory, Aalborg University Esbjerg Niels Bohrs Vej 8, Esbjerg, DK-6700, Denmark T: +45 79127690, F: +45 75453643, granly@aue.auc.dk</p> <p>Claus Hübbe Ibsen, Tron Solberg and Bjorn H. Hjertager, Chemical Engineering Laboratory, Aalborg University Esbjerg</p>	<p>21 - METHANE STEAM REFORMERS: INFLUENCE OF THE OPTIMAL TUBE SKIN TEMPERATURE PROFILES ON CARBON FORMATION</p> <p>Juliana Piña, PLAPIQUI (UNS-CONICET) Camino la Carrindanga, km. 7, Bahía Blanca, Buenos Aires, 8000, Argentina T: 542914861700, F: 542914861600, julianap@plapiqui.edu.ar</p> <p>Verónica Bucalá and Daniel Oscar Borio, PLAPIQUI (UNS-CONICET)</p>
11:30 - 11:45	<p>57 - CFD AND KINETICS COUPLING FOR THE SIMULATION OF NATURAL GAS COMBUSTION IN A FLUIDIZED BED OF INERT PARTICLES</p> <p>R. Andreux, Institut Français du Pétrole, Centre d'Etudes et de Développements Industriels Solaize B.P.3, Vernaison, 69390, France T: 514-340-4711, ext. 4034, F: 514-340-159,</p>	<p>32 - THE TRANSIENT ANALYSIS OF CATALYTIC CUMENE CRACKING</p> <p>Klaus P Moller, University of Cape Town Catalysis Research Unit, Chemical Engineering, Private Bag, Rondebosch, 7700, South Africa T: 27 21 650 2520, F: 27 21 689 7579, km@chemeng.uct.ac.za</p> <p>Peter Schwan, Bayer AG, Germany</p>

	<p>jamal.chaouki@polymtl.ca"</p> <p>P. Sauriol and Jamal Chaouki Chemical Engineering Dpt., Ecole Polytechnique de Montréal, C.P. 6079, succ. Centre-ville, Montréal, Quebec, Canada H3C 3A7</p>	
11:45 - 12:00	<p>22 - GAS DISPERSION AND BUBBLE-TO-EMULSION PHASE MASS EXCHANGE IN A GAS-SOLID BUBBLING FLUIDIZED BED: A COMPUTATIONAL AND EXPERIMENTAL STUDY</p> <p>D. J. Patil, University of Twente Faculty of Science and Technology, PK-FAP, Enschede, P.O. Box 217, Overijssel, 7500 AE, The Netherlands T: +31-53-489 2370, F: +31-53-489 2882, d.j.patil@ct.utwente.nl</p> <p>M. van Sint Annaland, and J.A.M. Kuipers, University of Twente</p>	<p>39 - SULFUR EMISSIONS FROM CLAUS PLANTS: A NEW LOOK AT AN OLD PROBLEM</p> <p>Kunal Karan, Queen's University Dupuis Hall, Kingston, Ontario, K7L3N6, Canada T: 1-613-533-3095, F: 1-613-533-6637, karan@chee.queensu.ca</p> <p>Leo Behie, University of Calgary</p>
12:00 - 12:15		<p>45 - APPROXIMATE EFFECTIVENESS FACTORS WHEN A DEAD ZONE IS PRESENT</p> <p>J. O. Marroquín de la Rosa, Instituto Mexicano del Petróleo Eje Central Lázaro Cárdenas 152, México, Distrito Federal, 07730, México T: (52)(5)30038131, F: (52)(5)30038429, jmarroq@imp.mx</p> <p>J. J Valencia López, Instituto Mexicano del Petróleo</p> <p>J. A. Ochoa Tapia and T. Viveros García, Universidad Autónoma Metropolitana Iztapalapa</p>
12:30 - 14:00	<i>Lunch</i>	
14:00 - 17:30	<i>Ad hoc Session and/or Free Time</i>	
17:30-18:00	Afternoon Coffee	
	<p>SESSION II: THEMES I and II</p> <p>COMPUTATIONAL FLUID DYNAMICS AND MODELLING IN REACTOR ENGINEERING</p>	
18:00 - 19:30	<p>THEME I</p> <p>COMPUTATIONAL FLUID DYNAMICS and INNOVATIONS IN REACTOR ENGINEERING</p>	<p>THEME II</p> <p>MODELLING and INNOVATIONS IN REACTOR ENGINEERING</p>
18:00 - 18:15	<p>134 - NONLINEAR DYNAMICAL ANALYSIS OF THE LOCAL HEAT TRANSFER BEHAVIOUR IN THREE-PHASE REACTORS</p> <p>Wei Chen, Department of Chemical System Engineering, The University of Tokyo 7-3-1 Hongo, Bunkyo-Ku, Tokyo, 113-8656, Japan T: 81-03-58417716, F: 81-03-58417270, weichen@chemsys.t.u-tokyo.ac.jp</p>	<p>15 - FORMULATION OF REDUCED-ORDER MODELS FOR STABILITY AND DYNAMIC ANALYSIS OF AUTOTHERMAL RADIAL FLOW REACTORS</p> <p>Malte Bartels, Cleveland State University Chem. Eng. Dept., 1960 East 24th Street, Stillwell Hall 455, Cleveland, Ohio, 44115, United States T: (216)-523-7462, F: (216)-687-9220, mail to: maltebartels@gmx.net</p>

	<p>Atsushi Tsutsumi, Department of Chemical System Engineering, The University of Tokyo</p> <p>Kentarou Otawara and Shigaki Yoshiki, Technical Management and Systems Department, Kureha Chemical Industry</p>	<p>Jorge E. Gatica, Cleveland State University</p>
18:15 - 18:30	<p>14 - CFD SIMULATION OF REACTION AND HEAT TRANSFER NEAR THE WALL OF A FIXED BED</p> <p>Anthony G. Dixon, Worcester Polytechnic Institute 100 Institute Road, Worcester, MA, 01609, USA, T: (508) 831-5350, F: (508) 831-5853, mail to agdixon@wpi.edu:</p> <p>Michiel Nijemeisland, Worcester Polytechnic Institute,</p> <p>E. Hugh Stitt, Syntex Co.</p>	<p>47 - DESIGN ALTERNATIVES FOR TEMPERATURE CONTROL OF AN EXOTHERMIC REACTOR</p> <p>Mariso Garfias-Vazquez, Instituto Mexicano del Petroleo Eje Central Lazaro Cardenas 152, Mexico, Distrito Federal, 07730, Mexico T: +52(55) 30038133, F: +52(55) 30038429, mgarfias@imp.mx</p> <p>Martha L. Jimenez-Alarcon , Jose A. Munoz Arroyo, Yosajandi Perez Campillo and Ma. Angeles Mantilla-Ramirez, Instituto Mexicano del Petroleo</p>
18:30 - 18:45	<p>115 - NUMERICAL STUDY OF THE INFLUENCE OF HORIZONTAL TUBE-BANKS ON THE HYDRODYNAMICS OF A GAS-SOLID BUBBLING FLUIDIZED BED</p> <p>Sanjib Das Sharma, Indian Institute of Technology, Delhi Department of Chemical Engineering, I.I.T-Delhi, Hauz Khas, New Delhi, Delhi, 110016, INDIA T: 91-11-659-6122, F: 91-11-686-2037, sanjibds82@hotmail.com</p> <p>Ratan Mohan,</p>	<p>120 - SIMULATIONS OF REACTING FLUIDIZED BEDS USING AN AGENT BASED BUBBLE MODEL</p> <p>Stuart Daw, Oak Ridge National Laboratory 2360, Cherahala Boulevard, Knoxville, TN, 37932, USA T: 865-946-1341, F: 865-946-1398, dawcs@ornl.gov</p> <p>Sreekanth Pannala, Oak Ridge National Laboratory</p> <p>John S. Halow, National Energy Technology Laboratory</p>
18:45 - 19:00	<p>44 - RANDOMLY PACKED BED OPERATION FOR GAS/LIQUID SEPARATION: NEW INSIGHTS ON THE INTERCONNECTIVITY OF HYDRODYNAMICS AND MASS TRANSFER PRINCIPLES</p> <p>Simon Piché, Laval University Chemical Engineering Department, Québec, Québec, G1K 7P4, Canada T: (418) 656-2131 (4496), F: (418) 656-5993, spiche@gch.ulaval.ca</p> <p>Bernard P.A. Grandjean, and Faiçal Larachi, Laval University</p>	<p>138 - ENHANCEMENT OF THE DISTRIBUTION OF A LIQUID SPRAYED INTO A GAS-SOLID FLUIDIZED BED</p> <p>David Zhou, UWO Engineering, London, Ontario, N6A 5B9, Canada T: 519 661 2145, F: 519 661 3498, david.zhou@mail.com</p> <p>Mohammad Saberian, Cedric Briens and Franco Berruti, UWO</p> <p>Edward Chan, Syncrude Canada</p>
19:00 - 19:15	<p>2 - HIGH QUALITY DIESEL BY HIDROTREATING OF ATMOSPHERIC GAS OIL/LIGHT CYCLE OIL BLENDS.</p> <p>Georgina Laredo Sanchez, Instituto Mexicano del Petroleo 152 Eje Central Lazaro Cardenas, Mexico City, DF, 07730, Mexico, T: 5255-30036615, F: 5255-30038429, glaredo@imp.mx</p>	<p>117 - A NOVEL REACTOR FOR ULTRAPYROLYSIS</p> <p>Denis Tizard, University of Western Ontario 1151 Richmond Street, London, Ontario, N6A 5B9, Canada T: 519-661-2111 Ext. 88356, F: 519-661-3498, cbriens@eng.uwo.ca</p> <p>Cedric Briens and Maurice Bergougnou, University</p>

	Jose Luis Cano Dominguez, Maria del Carmen Martinez Guerrero, Ricardo Saint Martin Castañon, and Jesus Castillo Munguia, Instituto Mexicano del Petroleo	of Western Ontario
19:15-19:30	<p>137 - INJECTION OF A LIQUID SPRAY INTO A GAS-SOLID FLUIDIZED BED: MEASUREMENT OF PARTICLE-LIQUID MIXING</p> <p>Peter House, UWO Engineering, London, Ontario, N6A 5B9, Canada T: 519 661 2145, F: 519 661 3498, peter_house@hotmail.com</p> <p>Mohammad Saberian, Cedric Briens and Franco Berruti, UWO</p> <p>Edward Chan, Syncrude Canada</p>	<p>135 - HYDRODYNAMIC MODELING OF CFB RISERS AND DOWNERS</p> <p>Yasemin G. Bolkan, The University of Calgary Dept. of Chemical and Petroleum Engineering, 2500 University Drive N.W., Calgary, Alberta, T2N 1N4, Canada T: (519) 661-2128, F: (519) 850-2399, ygbolkan@ucalgary.ca</p> <p>Franco Berruti and Jesse (J.X.) Zhu, The University of Western Ontario</p> <p>Bruce J. Milne, The University of Calgary</p>
19:30 - 21:00	<i>Dinner</i>	
21:00 - 23:00	<p>POSTER SESSION / SOCIAL TIME</p> <p><i>Includes in addition to all the oral presentations of Sessions I and II (Themes I and II) the following contributions</i></p>	
	<p>8 - MODELING OF HDS, HDN AND HDA IN A HYDROTREATING TRICKLE-BED REACTOR</p> <p>J. Ancheyta, Instituto Mexicano Del Petroleo Eje Central Lazaro Cardenas 152, Mexico, D.F., 07730, Mexico, T: 55-30038443, F: 55-30038429, jancheyt@imp.mx</p> <p>M. A. Rodriguez, Universidad Nacional Autonoma De Mexico</p>	
	<p>12 - RADIAL PROFILES OF SOLIDS VOLUME FRACTION AND PARTICLE VELOCITY IN A LARGE-SCALE DOWNWARD CIRCULATING FLUIDIZED BED</p> <p>Zhen QIAN, Department of Chemical Engineering, Tsinghua University, Tsinghua University, Beijing, Beijing, 100084, P.R.China, T: +86-10-62794132, F: +86-10-62772051, zhnhui99@mails.tsinghua.edu.cn</p> <p>Minghui ZHANG, Hao YU and Fei WEI, Department of Chemical Engineering, Tsinghua University</p>	
	<p>41 - MODELLING MIDDLE DISTILLATE HYDROTREATMENT</p> <p>Pedro M. Vega Merino, Instituto Mexicano del Petróleo (IMP) Eje Lázaro Cárdenas No. 152, México, Distrito Federal, 07740, México T: #+55+30038522, F: #+55+30038541, pvega@imp.mx</p> <p>Rafael Torres Robles, Oscar H. Bermúdez Mendizábal, and Rocío Santiago Barrera, IMP</p>	
	<p>52 - CONTROL ALTERNATIVES OF AN INDUSTRIAL AMMONIA SYNTHESIS REACTOR</p> <p>Noemí S. Schbib, Planta Piloto de Ingeniería Química (UNS-CONICET) Camino La Carrindanga, Km. 7, Bahía Blanca, Buenos Aires, 8000, Argentina T: 54-0291-4861700, F: 54-0291-4861600, ssschbib@plapiqui.edu.ar</p> <p>Marisa N. Pedernera, Eduardo López, Daniel O. Borio, Planta Piloto de Ing. Química (UNS-CONICET)</p>	
	<p>58 - GROWING OF TISSUE ENGINEERED CARTILAGE ON POLYMERIC SCAFFOLDS: MODELING</p> <p>Giacomo Cao, Dipartimento di Ingegneria Chimica e Materiali, Universita' degli Studi di Piazza d'Armi,</p>	

Tuesday July 1, 2003

07:00 - 08:30	<i>Breakfast Buffet (Dining Room)</i>	
	SESSION III: THEMES III AND IV ENVIRONMENTAL REACTION ENGINEERING AND CATALYTIC PROCESSES	
08:30 - 09:15	"NOVEL ADSORBENT MATERIALS FOR ENVIRONMENTAL APPLICATIONS"	
"THEME III"	Author: Roberto Leyva Ramos Affiliation: University de San Luis de Potosi, San Luis de Potosi, Mexico	
09:15 - 09:30	<i>Discussion Period – Questions and Answers</i>	
09:30 - 10:00	<i>Coffee Break</i>	
10:00 - 10:45	"COMBINATORIAL CATALYSIS "	
"THEME III"	Author: P. Mills Affiliation: Dupont, USA	
10:45 - 11:00	<i>Discussion Period – Questions and Answers</i>	
	THEME IV: CATALYTIC PROCESSES	
11:00 - 11:15	146 - CONVERSION OF SYNTHESIS GAS INTO LIGHT HYDROCARBONS Hugo de Lasa, University of Western Ontario Faculty of Engineering, London, Ontario, N6A5B9, Canada T: 519-661-2144, F: 519-661-3498, hdelasa@eng.uwo.ca Lou Hagey, Imperial Oil Canada	131 - MANUFACTURING HIGH QUALITY BASESTOCKS Alberto Ravella, ExxonMobil Research and Engineering P.O. Box 2226, Baton Rouge, Louisiana, 70821-2226, United States T: (225) 977-5022, F: (225) 977-4255, alberto.ravella@exxonmobil.com
11:15 - 11:30	160 - NANOCRYSTALLINE PEROVSKITES SYNTHESIZED BY REACTIVE GRINDING S. Kaliaguine, Departement de Genie Chimique Universite Laval, Department of Chemical Engineering,, Québec, Québec, G1K 7P4, Canada T: + (418) 656 2131, F: + (418) 656 5993,	139 - LIQUID PHASE ALKYLATION OF BENZENE WITH LONG-CHAIN OLEFIN OVER ZEOLITE CATALYST: DEACTIVATION AND REGENERATION Wei CHEN, Dept. of Chem. System Engi., The University of Tokyo 7-3-1 Hongo, Bunkyo-Ku, Tokyo, 113-8656, Japan T: 81-03-58417716, F: 81-03-58417270, weichen@chemsys.t.u-tokyo.ac.jp MinHan HAN, Zhe Cui and Yong JIN, Dept. of Chem. Eng. Tsinghua University Atsushi TSUTSUMI, Depart. of Chem. System Eng., The University of Tokyo
11:30 - 11:45	18 - LOW-CARBON MONOXIDE HYDROGEN BY SORPTION ENHANCED REACTION Douglas P. Harrison, Louisiana State University Gordon A. and Mary Cain Department of Chemical Engineering, Baton Rouge, Louisiana,	148 - GAS RECIRCULATION AND MIXING IN THE CREC NOVEL RISER SIMULATOR Jason Ginsburg, University of Western Ontario Faculty of Engineering, London, Ontario, N6A5B9, Canada T: 519-661-2144, F: 519-661-3498, hdelasa@eng.uwo.ca

	70803, USA T: 225-578-3066, F: 225-578-1476, harrison@che.lsu.edu Zhiyong Peng, Louisiana State University	Hugo de Lasa, University of Western Ontario
11:45 - 12:00	35 - THE CATALYTIC EVALUATION OF ZEOLITE FILMS Klaus P Möller, University of Cape Town Catalysis Research Unit, Chemical Engineering, Private Bag, Rondebosch, 7700, South Africa T: 27 21 650 2520, F: 27 21 689 7579, km@chemeng.uct.ac.za Jonas Hedlund and Olov Öhrman, Chemical Technology, Luleå Technical University Vephi Msimang, Chemical Engineering, University Cape Town	26 - COMBATING DEACTIVATION IN METHANE NON-OXIDATIVE DEHYDROCYCLIZATION VIA HYDROGEN FEED PULSING Maria C. Iliuta, Laval University Department of Chemical Engineering and CERPIC, Québec, Québec, G1K 7P4, Canada T: + (418) 656 2131 / 4790 or 6198, F: + (418) 656 5993, maria.iliuta@gch.ulaval.ca Iliuta, I. Grandjean, B.P.A. and Larachi, F. Laval University, Department of Chemical Engineering and CERPIC
12:00 - 12:15	69 - CATALYST TYPE AND GUM PRECURSORS IN FCC NAPHTHA Ulises Sedran, INCAPE Santiago del estero 2654, Santa Fe, Santa Fe, 3000, Argentina T: +54 (342) 452-8062, F: +54 (342) 453-1068, usedran@fiqus.unl.edu.ar Gabriela de la Puente and Guadalupe Coppes, INCAPE	89 - PHENOMENOLOGY OF LEAN NOX ADSORBER CATALYSTS Stuart Daw, Oak Ridge National Laboratory National Transportation Research Center, 2360 Cherahala Boulevard, Knoxville, Tennessee, 37932-6472, USA T: 001-865-946-1341, F: 001-865-946-1398, dawcs@ornl.gov Kalyana Chakravarthy and Katey Lenox, Oak Ridge National Laboratory
12:30 - 1700	<i>Lunch on your own</i> <i>Visit to the Quebec Citadelle</i> <i>Ad hoc discussions and/or Free Time</i>	
17:30-18:00	<i>Afternoon Coffee</i>	
	SESSION IV: THEME IV CATALYTIC PROCESSES	
18:00 - 18:15	91 - EFFECT OF HYDROGEN ION-EXCHANGE CAPACITY ON ACTIVITY OF RESIN CATALYSTS AND MECHANISM OF TAME AND TAAE SYNTHESIS Timur Dogu, Middle East Technical University Department of Chemical Engineering, ODTU, Inonu blv., Ankara, 06531, Turkey T: 90 312 2102601, F: 90 312 2101264, tdogu@metu.edu.tr <u>Nezahat Boz</u> , Middle East Techn. Univ., Ankara Gulsen Dogu and Kirali Murtezaoglu, Gazi	149 - MODELLING CATALYTIC CRACKING IN A NOVEL RISER SIMUALTOR. ADSORPTION PARAMETERS UNDER REACTION CONDITIONS Jesus A. Atias, University of Western Ontario Faculty of Engineering, London, Ontario, N6A5B9, Canada T: 519-661-2144, F: 519-661-3498, jaatiass@uwo.ca Gabriela Tonetto and Hugo de Lasa, University of Western Ontario

	University, Ankara	
18:15 - 18:30	<p>108 - COMBINED APPROACH TO PREDICT LPG YIELD AND COMPOSITION IN INDUSTRIAL FCC UNITS</p> <p>Martin Aguilera-López, Instituto Mexicano del Petróleo Eje Central Lázaro Cárdenas 152, Col. San Bartolo Atepehuacan, Mexico City, D.F., 07730, México T: +52-55-30038439g, F: +52-55-30038429, maguiler@imp.mx</p> <p>Daniel Salazar-Sotelo and Rafael Maya-Yescas, Instituto Mexicano del Petróleo</p>	<p>36 - DEVELOPMENT OF CATALYTIC CANDLE FILTER FOR ONE-STEP TAR AND PARTICLE REMOVAL IN BIOMASS GASIFICATION GAS</p> <p>Karen Engelen, Vrije Universiteit Brussel - Department of Chemical Engineering Pleinlaan 2, Brussels, 1050, Belgium T: +32-2-6293246, F: +32-2-6293248, gvbaron@vub.ac.be</p> <p>Yuhong Zhang, Gino V. Baron, Vrije Universiteit Brussel - Department of Chemical Engineering</p>
18:30 - 18:45	<p>23 - A MECHANISTIC MODEL FOR THE WATER GAS SHIFT REACTION OVER COMMERCIAL CATALYSTS CONTAINING CUO/ZNO</p> <p>Ronald F. Mann, Royal Military College of Canada P.O. Box 1700 Stn Forces, Kingston, Ontario, K7K 7B4, Canada T: 613 541-6000 x6055, F: 613 542-9489, mann-r@rmc.ca</p> <p>John C. Amphlett, Brant A. Peppley, Christopher P. Thurgood, Royal Military College of Canada</p>	<p>130 - ALTERNATIVE DESIGN FOR FIXED BED CATALYTIC REACTORS.</p> <p>Edvaldo R. Morais, Faculty of Chemical Engineering, State University of Campinas (UNICAMP) CEP 13081-970, Campinas, São Paulo, 6066, Brasil T: +551937883910, F: +551937883910, erms@lopca.feq.unicamp.br</p> <p>Eduardo C. Vasco de Toledo, Rubens Maciel Filho, Faculty of Chemical Engineering, State University of Campinas (UNICAMP)</p>
18:45 - 19:00	<p>37 - ADSORPTION COMPETITION EFFECTS IN HYDROCONVERSION OF ALKANE MIXTURES ON ZEOLITES</p> <p>Joeri F.M. Denayer, Department of Chemical Engineering, VUB Pleinlaan 2, Brussels, 1050, Belgium, T: + 32 2 629 17 98, F: + 32 2 629 32 48, Joeri.Denayer@vub.ac.be</p> <p>Refik Ocakoglu, Dept. of Chemical Eng., VUB</p> <p>Bruno De Jonckheere, Johan A. Martens, Center for Surface Science and Catalysis, KULeuven</p> <p>Gino V. Baron, Dept. of Chemical Eng., VUB</p>	<p>46 - REACTIVE HYDROGEN CONTENT: A TOOL TO PREDICT FCC YIELDS</p> <p>Ernesto Mariaca-Domínguez, Programa de Tratamiento de Crudo Maya. Instituto Mexicano del Petróleo Lázaro Cárdenas 152. Col. San Bartolo Atepehuacan, Mexico, D.F., 07730, MEXICO T: +52-55-3003 8441, F: +52-55-3003 8429, emariaca@imp.mx</p> <p>Rafael Maya-Yescas and Silvano Rodríguez-Salomón, Programa de Tratamiento de Crudo Maya. Instituto Mexicano del Petróleo</p>
19:00 - 19:15	<p>156 - CATALYTIC PYROLYSIS OF R-22 (DIFLUOROCHLOROMETHANE, CHCLF₂) FOR TFE SYNTHESIS</p> <p>Dong Ju Moon, Environment and Process Technology Division, Korea Institute of Science and Technology P.O.Box 131, Cheongryang, Seoul, 130-650, Republic of Korea T: +82-2-958-5867, F: +82-2-958-5809, djmoon@kist.re.kr</p> <p>Dae Jin Sung, Department and Process Technology Division, Korea University</p> <p>Yong Jun Lee, Dae Young Chemical Co., LTD.</p> <p>Jung Jo Jung, Environment and Process</p>	<p>90 - ENVIRONMENTAL CATALYSIS FOR WET OXIDATION OF ACRYLIC ACID: STUDIES WITH MANGANESE-BASED OXIDES</p> <p>Adrián T. Silva, Department of Chemical Engineering, University of Coimbra Polo II - Pinhal de Marrocos, Coimbra, 3030-290, Portugal T: +351-964291576, F: +351-239798703, adrian3@eq.uc.pt</p> <p>Rita R. N. Marques and Rosa M. Quinta-Ferreira, Department of Chemical Engineering, University of Coimbra, Portugal</p>

	Technology Division, Korea Institute of Science and Technology Suk In Hong, Department and Process Technology Division, Korea University	
19:30 - 21:00	Dinner	
21:00 - 23:00	POSTER SESSION / SOCIAL TIME Includes in addition to all the oral presentations of Sessions III and IV (Theme IV) the following contributions	
	<p>25 - BIFUNCTIONAL REDOX SCRUBBING OF HYDROGEN SULPHIDE IN FERRIC CHELATE SOLUTIONS: REACTION-TRANSPORT MODEL FOR RANDOMLY PACKED-BED SCRUBBERS FOR PULP AND PAPER EFFLUENTS</p> <p>Ion Iliuta, Laval University Department of Chemical Engineering, Québec, Québec, G1K 7P4, CANADA T: +(418) 656 2131 / 4790, F: +(418) 656 5993, ion.iliuta@gch.ulaval.ca</p> <p>Bernard Grandjean, Faical Larachi, Laval University</p>	
	<p>38 - NAPHTHA REFORMING WITHOUT CHLORIDE ADDITION</p> <p>Pedro M. Vega Merino, Instituto Mexicano del Petróleo (IMP) Eje Lázaro Cárdenas Norte No. 152, México, Distrito Federal, 07740, México T: #+55+30038522, F: #+55+30038541, pvega@imp.mx</p> <p>Rafael Chiang Salcedo, Gcia. Ingeniería de Procesos. PEMEX-Refinación.</p> <p>Alfonso García López, Ricardo Agueda Rangel, Sergio Ramírez Amador, IMP</p>	
	<p>68 - KINETIC STUDY OF GAS PHASE POLYMERIZATION OF PROPYLENE WITH A 4TH GENERATION ZIEGLER-NATTA CATALYST</p> <p>I.C. van Putten, University of Twente Department of Chemical Technology, P.O. Box 217, Enschede, 7500 AE, The Netherlands T: +31 53 489 2937, F: +31 53 489 4738, i.c.vanputten@ct.utwente.nl</p> <p>G. Weickert, University of Twente</p>	
	<p>97 - CATALYTIC OXIDATION OF HYDROGEN SULFIDE TO SULFUR USING CU-V AND CU-V-MO MIXED OXIDE CATALYSTS</p> <p>Gulsen Dogu, Gazi University Gazi University, Department of Chemical Engineering, Maltepe, Ankara, 06570, TURKEY T: 90 312 231 74 00 ext.2559, F: 90 312 230 84 34, gdogu@mmf.gazi.edu.tr</p> <p>Sena Yasyerli, Irfan Ar, Gazi University, Ankara</p> <p>Timur Dogu, Middle East Technical University, Ankara</p>	

	<p>114 - A RAPID SYNTHESIS OF AMINO ACIDS USING A SUPERCRITICAL WATER MICROREACTION SYSTEM</p> <p>Kiyotaka Hatakeda, Supercritical Fluid Research Center, National Institute of Advanced Industrial Science and Technology (AIST) 4-2-1 Nigatake, Sendai, Miyagi, 983-8551, Japan T: +81-22-237-5211, F: Int.+81-22-237-5224, k-hatakeda@aist.go.jp</p> <p>Yutaka Ikushima, Osamu Sato, Mitsuo Kanakubo, Hajime Kawanami, Supercritical Fluid Research Center, National Inst. of Adv. Ind. Sc. and Techn. (AIST)</p>
	<p>118 - THE ROLE OF W IN PT/WO_x-AL₂O₃ CATALYSTS WITH HIGH SELECTIVITY TO BTX</p> <p>José L. Contreras, Universidad Autónoma Metropolitana-Azcapotzalco Av. Sn. Pablo 180, Col. Reynosa, Mexico, D.F., D.F., 02200, México T: 52-53189062, F: 52-53947378, jlcontre@internet.com.mx and jlcl@correo.azc.uam.mx</p> <p>Gustavo A. Fuentes, Universidad Autónoma Metropolitana-Iztapalapa</p>
	<p>119 - MODELING OF FISCHER-TROPSCH PRODUCTS HYDROCRACKING</p> <p>Laura Pellegrini, Department of Chemistry, Materials and Chemical Engineering 'G. Natta', Politecnico of Milan piazza L. da Vinci, 32, Milano, 20133, Italy T: +39 02 23993237, F: +39 02 70638173, laura.pellegrini@polimi.it</p> <p>Serena Locatelli, Simona Rasella, Department of Chemistry, Materials and Chem. Eng. 'G. Natta', Politecnico of Milan</p>
	<p>121 REDUCTION OF NO_x OVER SOL-GEL PD/LAO_x-AL₂O₃ CATALYSTS.</p> <p>Jose L. Contreras, Universidad Autónoma Metropolitana-Azcapotzalco Av. Sn. Pablo 180, Col. Reynosa, México, D.F., D.F., 02200, MEXICO T: 52-53189062, F: 52-53947378, jlcontre@internet.com.mx and jlcl@correo.azc.uam.mx</p> <p>Juan Navarrete, Instituto Mexicano del Petróleo</p> <p>Ricardo Luna P., Mayra A. Alvarez and Victoria A. Fuentes, Universidad Autónoma Metropolitana-Azcapotzalco</p>

Wednesday July 2, 2003

07:00 - 08:30	<i>Breakfast Buffet (Dining Room)</i>
	SESSION V: THEME IV and V CATALYTIC PROCESSES AND MULTIFUNCTIONAL REACTORS
08:30 - 09:15	"MEMBRANE REACTION ENGINEERING"
"THEME IV"	Author: A. G. Dixon Affiliation: Worcester Polytechnic Institute, 100 Institute Road, Worcester, MA, 01609, USA; T: (508) 831-5350, F: (508) 831-5853, agdixon@wpi.edu
9:15-9:30	<i>Discussion Period – Questions and Answers</i>
09:30 - 10:00	<i>Coffee Break</i>
10:00 - 10:45	"CATALYSIS ENGINEERING AT THREE LEVELS"

<p>"THEME V" 10:45 - 11:00</p>	<p>Author: J. Mouljin Affiliation: Technical University of Delft, The Netherlands <i>Discussion Period – Questions and Answers</i></p>	
	<p>THEME V MULTIFUNCTIONAL CHEMICAL REACTORS</p>	<p>THEME VI MULTIPHASE CHEMICAL REACTORS,</p>
<p>11:00 - 11:15</p>	<p>30 - GAS BACKMIXING STUDIES IN MEMBRANE ASSISTED FLUIDIZED BEDS</p> <p>S.A.R.K. Deshmukh, Department of Chemical Engineering, Twente University PO Box 217, Enschede, Overijssel, 7500 AE, The Netherlands T: +31534892405, F: +31534892882, s.a.r.k.deshmukh@ct.utwente.nl</p> <p>M. van Sint Annaland, J.A.M. Kuipers, Department of Chemical Engineering, Twente University</p>	<p>81 - SIMULATION AND DESIGN OF A NON-ADIABATIC MULTIPHASE MICROREACTOR</p> <p>Andreas Schuster, University of Edinburgh K. Denbigh Build., Kings Buildings Campus, Edinburgh, Scotland, EH9 3JL, UK T: +44 (0)131 650 4857, F: +44 (0)131 650 5893, Aschust@eng.ed.ac.uk</p> <p>Rama Lakshmanan J W Ponton, K Sefiane, University of Edinburgh</p>
<p>11:15 - 11:30</p>	<p>28 - MODELLING OF THE ISOBUTENE OLIGOMERIZATION ON AN EXPERIMENTAL MEMBRANE REACTOR</p> <p>Jesús Fernández-López, Instituto Mexicano del Petróleo Eje Central Lázaro Cárdenas 152, México, D. F., 02800, México T: 3003-8535, F: 3003-8541, jfernand@imp.mx</p> <p>Miguel Torres-Rodríguez and Lidia López-Pérez, Universidad Autónoma Metropolitana Javier Castro Arellano, Instituto Politécnico Nac. Angeles Mantilla -Ramirez, Inst. Mex. del Petr.</p>	<p>95 - MANIPULATING THE FLUIDIZED BED BUBBLE PATTERN BY IMPOSING AN ELECTRIC FIELD</p> <p>F. Kleijn van Willigen, Faculty of Applied Sciences, Delft University of Technology Julianalaan 136, Delft, ZH, 2628 BL, The Netherlands T: +31 (0) 15 2784753, F: +31 (0) 15 2785006, F.KleijnvanWilligen@TNW.TUdelft.NL</p> <p>J.R. van Ommen, J. van Turnhout and C.M. van den Bleek, Delft University of Technology</p>
<p>11:30 - 11:45</p>	<p>61 - THE EFFECT OF OXYGEN DISTRIBUTION ON PRODUCT SELECTIVITY IN PACKED BED MEMBRANE REACTORS</p> <p>U. Kuerten, University of Twente Postbus 217, 7500AE, Enschede, Netherlands T: 0031 534894478, F: 0031 534892882, u.kuerten@ct.utwente.nl</p> <p>Sint Annaland, G.F. Versteeg, and J.A.M. Kuipers University of Twente</p>	<p>109 - GAS AND SOLID MIXING IN HIGH-DENSITY CFB RISERS</p> <p>Hsiaotao Bi, University of British Columbia 2216 Main Mall, Vancouver, BC, V6T 1Z4, Canada T: 604-822-4408, F: 604-822-6003, xbi@chml.ubc.ca</p>
<p>11:45 - 12:00</p>	<p>55 - MODELLING OF A REVERSE FLOW CATALYTIC MEMBRANE REACTOR FOR THE PARTIAL OXIDATION OF METHANE</p> <p>J. Smit, University of Twente P.O. Box 217, Enschede, 7500 AE, The Netherlands T: 0031-534891062, F: 0031-534892882, j.smit@ct.utwente.nl</p> <p>M. van Sint Annaland, University of Twente J.A.M. Kuipers, University of Twente</p>	<p>161 - INJECTION OF A LIQUID SPRAY INTO A GAS-SOLID FLUIDIZED BED: MEASUREMENT OF SOLIDS ENTRAINMENT INTO THE SPRAY</p> <p>Vittorio Felli, Department of Chemical and Biochemical Engineering The University of Western Ontario, London, Ontario N6A 5B9, Canada</p> <p>Franco Berruti, and Cedric Briens, UWO Edward Chan Syncrude Canada Ltd. Research Centre Edmonton, Alberta, Canada</p>

12:15 - 12:30	<p>107 - METHANE DRY REFORMING BY CARBON DIOXIDE IN SOFC TYPE REACTOR WITH CERIA-BASED MEMBRANE</p> <p>Joonho Kim, Dept. of Chemical & Biological Engineering, Korea University, Korea 1, 5-ka, Anam-dong, Sungbuk-gu, Seoul, 136-701, Korea T: 82-2-3290-3294, F: 82-2-924-0988, korche15@korea.ac.kr</p> <p>Taeyoon Kim, Advanced Research Center for Energy & Environment Musashi Institute of Techn. Japan</p> <p>Dong Ju Moon, Korea Institute of Science and Technology, Korea</p> <p>Suk-In Hong, Dept. of Chemical & Biological Engineering, Korea University, Korea</p>	<p>136 - JET STABILITY, ENTRAINMENT, AND MIXING USING GAS AND LIQUID JETS IN A FLUIDIZED BED</p> <p>Craig Hulet, UWO Engineering, London, Ontario, N6A 5B9, Canada T: 519 661 2145, F: 519 661 3498, chulet@uwo.ca</p> <p>Cedric Briens and Franco Berruti, UWO</p> <p>Edward Chan, Syncrude Canada</p>
12:30 - 14:00	<i>Lunch</i>	
14:00 - 17:00	<p align="center">POSTER SESSION / SOCIAL TIME</p> <p align="center"><i>Includes in addition to all the oral presentations of Session V (Themes V and VI) the following contributions</i></p>	
	<p>9 - BUBBLE-PARTICLE INTERACTION IN A FLOTATION AGGREGATE</p> <p>G. L. Gentsler, Design And Research Enterprise Sibproject, Kombinatsky Pereulok, 3, Novosibirsk, Siberia, 630015, Russia, T: 007 3832 106602, F: 007 3832 187363, sibGN@online.nsk.su</p>	
	<p>10 - ON A NEW APPROACH TO TREATMENT OF OILY SEWAGE</p> <p>G. L. Gentsler, Design And Research Enterprise Sibproject, Kombinatsky Pereulok, 3, Novosibirsk, Siberia, 630015, Russia, T: 007 3832 106602, F: 007 3832 187363, sibGN@online.nsk.su</p> <p>A. M.. Sharkov, Design And Research Enterprise Sibproject</p>	
	<p>155 - GASOLINE FUEL PROCESSING SYSTEM FOR FUEL CELL POWERED VEHICLES APPLICATIONS</p> <p><u>Dong Ju Moon</u>, Environment and Process Technology Division, Korea Institute of Science and Technology P.O.Box 131, Cheongryang, Seoul, 136-791, Republic of Korea T: +82-2-958-5867, F: +82-2-958-5809, djmoon@kist.re.kr</p> <p>Jong Woo Ryu, Sang Deuk Lee and Byung Sung Ahn Environment and Process Technology Division, Korea Institute of Science and Technology</p>	
	<p>157 - CARBON DIOXIDE REFORMING BY METHANE IN ELECTROCATALYTIC MEMBRANE REACTOR SYSTEM</p> <p>Dong Ju Moon, Environment and Process Technology Division, Korea Institute of Science and Technology P.O.Box 131, Cheongryang, Seoul, 130-650, Republic of Korea T: +82-2-958-5867, F: +82-2-958-5809,</p>	

djmoon@kist.re.kr Tae Yoon Kim, Jun Hoo Kim Department of Chemical and Biological Engineering, Korea University Sang Deuk Lee, Environment and Process Technology Division, Korea Institute of Sc. and Technology Suk In Hong, Department of Chemical and Biological Engineering, Korea University
<i>Evening on your own</i>

Thursday July 3,2003

07:00 - 08:30	<i>Breakfast Buffet</i>	
	SESSION VI: THEMES III and VI MULTIPHASE CHEMICAL REACTORS and ENVIRONMENTAL REACTION ENGINEERING	
08:30 - 09:15	BUBBLE COLUMNS AS MULTIPHASE REACTORS"	
"THEME IV"	Author: G. Wild Affiliation: Ecole Nationale Supérieure des Industries Chimiques, Nancy, France , USA	
09:15 - 09:30	<i>Discussion Period – Questions and Answers</i>	
09:30 - 10:00	<i>Coffee Break</i>	
10:00 - 10:45	"BIOREMEDIATION OF WATER AND SOIL"	
"THEME V"	Author: M. Gray Affiliations: University of Alberta, Edmonton	
10:45 - 11:00	<i>Discussion Period – Questions and Answers</i>	
	THEME VI SENSOR TECHNIQUES AND MULTIPHASE CHEMICAL REACTORS	
11:00 - 11:15	48 - MEASUREMENT OF EFFICIENCY OF DISTRIBUTION OF LIQUID FEED IN A GAS-SOLID FLUIDIZED BED REACTOR Murray R Gray, University of Alberta Department of Chemical and Materials Engineering, Edmonton, Alberta, T6G 2G6, Canada T: 780-492-7965, F: 780-492-2881, murray.gray@ualberta.ca Brian Knapper and Edward W Chan, Syncrude Canada Ltd	50 - BUBBLE BEHAVIOUR IN THREE PHASE CAPILLARY REACTORS Dr D C Wong, University of Birmingham Chemical Engineering, Birmingham, West Midlands, B 15 2TT, United Kingdom T: 0121 414 5357, F: 0121 414 5324, d.c.wong@bham.ac.uk Dr M J H Simmons, University of Birmingham
11:15 - 11:30	152 - DETECTION AND MODELING OF THE CORE-ANNULUS TRANSITION IN INDUSTRIAL AND PILOT PLANT RISERS Lauren Briens, UWO Faculty of Engineering, London, Ontario, N6A 5B9, Canada T: (519) 661-2111 x88849, F: (519) 661-3498, lbriens@uwo.ca David Nevicato, Total Fina Elf Cedric Briens, UWO	80 - THE IMPACT OF PHASE CHANGE ON MODEL PREDICTIONS OF THREE-PHASE SLURRY REACTOR Eduardo Coselli Vasco de Toledo, Laboratory of Optimization, Design and Advanced Control (LOPCA). Faculty of Chemical Engineering. State University of Campinas (UNICAMP) CP 6066, Campinas, SP, CEP 13081-970, Brazil T: +55-1937883971, F: +55-1937883910, urso@lopca.feq.unicamp.br

	Jean-Rene Bernard, Total Fina Elf	Adriano Pinto Mariano, José Marcos Francisco da Silva and Rubens Maciel Filho Faculty of Chemical Engineering, State University of Campinas (UNICAMP)
11:30 – 11:45	<p>141 - TECHNIQUES TO EVALUATE FLUIDIZATION QUALITY IN FLUIDIZED BEDS OF WET PARTICLES</p> <p>Steven McDougall, Syncrude Canada, Edmonton Research Center 9421 – 17 Avenue, Edmonton, Alberta, T6N 1H4, Canada T: (780) 970-6937, F: (780) 970-6805, mcdougall.steven@syncrude.com</p> <p>Mohammad Saberian, Cedric Briens and Franco Berruti, UWO</p>	<p>88 - ACCELERATION OF CHEMICAL REACTIONS USING A SUPERCRITICAL WATER MICROREACTION SYSTEM: SPECTROSCOPIC ANALYSIS AND A FIRST-PRINCIPLES MOLECULAR DYNAMICS STUDY</p> <p>Yutaka Ikushima, Supercritical Fluid Research Center, Nat'l Insti. of Adv. Ind. Sci. and Technol. 4-2-1 Nigatake, Miyagino-ku, Sendai, Miyagi Prefecture, 983-8551, Japan T: +81-22-237-5211, F: +81-22-237-5224, y-ikushima@aist.go.jp</p> <p>Kiyotaka Hatakeda; Masahiro Sato; Tamio Ikeshoji and Osamu Sato, Nat'l Insti. of Adv. Ind. Sci. and Technol.</p>
11:45 - 12:00	<p>162 – CREC-GS-OPTIPROBES FOR PARTICLE AND CLUSTER DETECTION IN DOWNFLOW REACTORS</p> <p>Sam Nova, CREC, Department of Chemical Engineering, Faculty of Engineering, The University of Western Ontario, London, Ontario N6A 5B9 T: (519) 661-2144</p> <p>S. Krol and H. de Lasa, UWO</p>	<p>84 - DYNAMIC BEHAVIOUR OF A PHENOL HYDROGENATION MULTIPHASE REACTOR</p> <p>Eduardo Coselli Vasco de Toledo, Faculty of Chemical Engineering, State University of Campinas (UNICAMP) Cidade Universitária, CP 6066, Campinas, São Paulo, CEP 13081-970, Brazil T: +551937883971, F: FAX +551937883910, urso@lopca.feq.unicamp.br</p> <p>Rubens Maciel Filho, Faculty of Chemical Eng., State University of Campinas (UNICAMP)</p>
12:15 - 12:30	<p>126 - STATE-OF-THE ART X-RAY IMAGING TECHNIQUE TO STUDY THE DISPERSION OF GAS-LIQUID JETS INJECTED INTO FLUIDIZED BEDS</p> <p>Siva Ariyapadi, The University of Western Ontario Department of Chemical and Biochemical Engineering, London, ON, N6A 5B9, CANADA T: (519) 661-2111 x 88357, F: (519) 661-3498, siva@uwo.ca</p> <p>David Holdsworth, The John P. Robarts Research Institute</p> <p>Franco Berruti and Cedric Briens, The University of Western Ontario</p>	<p>70 - CHAOS BUBBLING IN GAS-LIQUID BUBBLE COLUMNS WITH A SINGLE NOZZLE</p> <p>Ming-yan, Liu, School of Chemical Engineering & Technology, Tianjin University Weijin Road 92, Nankai District, Tianjin, 300072, PRChina T: 86-22-27404614, F: 86-22-27403389, myliu@tju.edu.cn</p> <p>Zong-ding, Hu; Jin-li, ZHANG; Chang-qing Cao and Xiu-yun Qin, School of Chemical Engineering & Technology, Tianjin University</p>

12:30 - 14:00	Lunch
14:00-17:30	Ad hoc session / free time
17:30 -18:00	Afternoon Coffee
17:30 -19:30	SESSION VII: POSTER SESSION / SOCIAL TIME
	<i>Includes in addition to all the oral presentations of Thursday's Session VI (Themes III and VI) and Friday's Session VIII (Themes III and VII) the following contributions</i>
	<p>19 - TERTIARY BUTYL MERCAPTAN ADSORPTION IN SOILS. DETERMINATION OF KINETIC AND TRANSPORT PARAMETERS FROM EXPERIMENTAL DATA</p> <p>Andrea M. Eberhardt, PLAPIQUI (UNS-CONICET) Camino La Carrindanga Km 7, Bahía Blanca, Buenos Aires, 8000, ARGENTINA T: 54-291-4861700, F: 54-291-4861600, aeberhardt@plapiqui.edu.ar Eduardo López, PLAPIQUI (UNS-CONICET) Verónica Bucalá, PLAPIQUI (UNS-CONICET) Daniel E. Damiani, PLAPIQUI (UNS-CONICET)</p>
	<p>24 - NOX EMISSION IN IN-LINE LOW-NOX CALCINERS – A THEORETICAL STUDY</p> <p>Ion Iliuta, Laval University Québec, G1K 7P4, Québec, Québec, G1K 7P4, CANADA T: +(418) 656 2131 / 4790, F: +(418) 656 5993, ion.iliuta@gch.ulaval.ca</p> <p>Maria Iliuta, Laval University</p>
	<p>40 - THERMAL DESORPTION OF HEXADECANE AND NAPHTHALENE CONTAMINATED SOILS.</p> <p>Jerónimo Merino, PLAPIQUI - UNS - CONICET. Camino "La Carrindanga", km. 7, Bahía Blanca, 8000, ARGENTINA. T: +54-291-4861700, F: +54-291-4861600, jmerino@plapiqui.edu.ar</p> <p>Verónica Bucalá, PLAPIQUI - UNS - CONICET.</p>
	<p>64 - CATALYTIC DRYING OF DIGESTED SLUDGE</p> <p>J. Chaouki, Chemical Engineering Department École Polytechnique de Montréal, Montreal, Quebec, H3C 3A7, Canada T: (514) 340-4711 #4034, F: (514) 340-4159, jamal.chaouki@polymtl.ca</p>
	<p>86 - CONTROL AND OPTIMIZATION OF A THREE PHASE INDUSTRIAL HYDROGENATION REACTOR</p> <p>Mylene C. A. F. Rezende, Laboratory of Optimization, Design and Advanced Control. Department of Chemical Processes. Faculty of Chemical Engineering. State University of Campinas (UNICAMP) CEP 13081-970, Campinas, SP, CP 6066, Brazil T: 55 19 3788 3971, F: 55 19 3788 3910, mylene@lopca.feq.unicamp.br</p> <p>Aline C. Costa and Rubens Maciel Filho, UNICAMP</p>
	<p>116 - PECULIARITY OF SUPERCRITICAL WATER WITH HIGH-PRESSURE AND HIGH-TEMPERATURE INFRARED SPECTROSCOPY</p> <p>Masahiro Sato, National Institute of Advanced Industrial Science and Technology 4-2-1 Nigatake Miyaginoku, Sendai, 983-8551, Japan T: +81-22-237-5211, F: +81-22-237-5215, masahiro-satou@aist.go.jp</p> <p>Yutaka Ikushima, ational Institute of Advanced Industrial Science and Technology</p> <p>Kiyotaka Hatakeda, ational Institute of Advanced Industrial Science and Technology</p>

	Osamu Sato, ational Institute of Advanced Industrial Science and Technology
19:30 - 23:00	<p><i>Conference Banquet followed by Social Hour</i></p> <p>Presentation: "THE INTERNATIONAL JOURNAL OF CHEMICAL REACTOR ENGINEERING", Invited Speaker: F. Berruti</p>

Friday July 4,2003

07:00 - 08:30	<i>Breakfast Buffet</i>
	<p>SESSION VIII: THEMES III and VII</p> <p>GREEN CHEMISTRY AND ENVIRONMENTAL REACTION ENGINEERING</p>
08:30 - 09:15	<p>"GREEN CHEMISTRY: CHALLENGES AND OPPORTUNITIES FOR REACTION AND REACTOR ENGINEERING"</p> <p>"THEME VII"</p> <p>Author: Esteban.Chornet Affiliation: Universidad de Sherbrooke, Quebec</p>
09:15 - 09:30	<i>Discussion Period – Questions and Answers</i>
09:30 - 10:00	<i>Coffee Break</i>
10:00 - 10:45	<p>"PHOTOCATALYTIC REACTORS FOR AIR AND WATER TREATMENT"</p> <p>"THEME III"</p> <p>Authors: H. de Lasa, B. Serrano, M. Salaices Affiliation: (1) Chemical Reactor Engineering Centre, University of Western Ontario, London, Ontario, Canada, (2), Universidad Autonoma de Zacatecas, Mexico, (3) Instituto de Investigaciones Electricas, Mexico</p>
10:45 - 11:00	<i>Discussion Period – Questions and Answers</i>
	<p>THEME III:</p> <p>REACTOR ENGINEERING IN BIOTECHNOLOGY</p>
11:00 - 11:15	<p>59 - DISINFECTING E-COLI BACTERIA IN DRINKING WATER USING A NOVEL FLUIDIZED BED REACTOR</p> <p>M. Kabir, Department of Chemical and Petroleum Engineering, University of Calgary 2500 University Drive NW, Calgary, Alberta, T2N 1N4, Canada T: 403-220-8908, F: (403) 282-5060, mkabir@ucalgary.ca</p> <p>F. Haque, A. Kantzas, Department of Chemical and Petroleum Engineering, University of Calgary</p> <p>E. Vaisman, C. H. Langford, Department of Chemistry, University of Calgary</p>
11:15 - 11:30	<p>62 - AN ENGINEERING MODEL FOR USE IN THE SCALE-UP AND DESIGN OF PHOTOCATALYTIC REACTORS</p> <p>Zisheng (Jason) Zhang, University of New Brunswick Department of Chemical Engineering, Fredericton, New Brunswick, E3B 5A3, Canada T: 506-453-5019, F: 506-453-3591, zzhang@unb.ca</p> <p>William A. Anderson and Murray Moo-Young, University of Waterloo</p>

11:30 - 11:45	<p>151 - PHOTO-CATALYTIC CONVERSION OF ORGANIC AND INORGANIC POLLUTANTS IN WATER</p> <p>Benito Serrano, Universidad Autonoma de Zacatecas Programa de Ingenieria Química, Unidad de Ciencias Químicas, Zacatecas, Zacatecas, 98600 M, Mexico T: 01152-492-923-2451, F: 01152-492-921-3990, beniser@prodigy.net.mx</p> <p>Miguel Salaires, Instituto de Investigaciones Electricas, Mexico</p> <p>Hugo de Lasa, University of Western Ontario, Canada</p>
11:45 - 12:00	<p>63 - DEVELOPMENT AND TESTING OF A ROTATING DISC PHOTOCATALYTIC REACTOR FOR WASTEWATER TREATMENT</p> <p>Zisheng (Jason) Zhang, University of New Brunswick Department of Chmeical Engineering, Fredericton, New Brunswick, E3B 5A3, Canada T: 506-453-5019, F: 506-453-3591, zzhang@unb.ca</p> <p>William A. Anderson, University of Waterloo</p> <p>Lianfeng Zhang, University of Waterloo</p>
12:00 - 12:15	<p>99 - STUDY OF PHOTOBIORECTOR STABILITY BY PHASE PLANE TECHNIQUE. APPLICATION TO CONTINUOUS PRODUCTION OF CYANOBACTERIUM SPIRULINA MAXIMA</p> <p>Khaled BELKACEMI, Depatment of Soil science and Agri-Food Engineering, Université Laval FSAA, Pavillon Paul-Comtois, Sainte Foy, Quebec, Quebec, G1K 7P4, Canada T: (418) 656 2131 Ext: 6511, F: (418) 656 3723, khaled.belkacemi@sga.ulaval.ca</p> <p>Safia HAMOUDI, Department of Chemical Engineering, Université Laval</p>
12:15 - 12:30	<p>106 - KINETICS AND EQUILIBRIUM OF CADMIUM BIOSORPTION BY YEAST CELLS S. CEREVISIAE AND K. FRAGILIS.</p> <p>A. Margaritis,, University of Western Ontario Department of Chemical and Biochemical Engineering, London, Ontario, N6A 5B9, Canada T: (519) 661-2146, F: (519) 661-3498, amarg@uwo.ca</p> <p>B. Hadi; F. Berruti and M. A. Bergougnou, University of Western Ontario</p>
12:30	Conference Close and Departure