ACHEMA AMERICA 2005

Mexico City
12-15 April 2005

UPDATED PROGRAM
and BOOK of ABSTRACTS
Conference Program AchemAmerica 2005

Overview

Tuesday, April 12, 2005

10:30 - 12:00  
Opening

17:00 - 18:00  
Plenary Lecture  
Perspectiva de la petroquímica en México  
Rafael Beverido, PEMEX Petroquimica/MEX

18:00 - 19:00  
Plenary Lecture  
Recent developments in Mexico's environmental industry  
Carlos Sandoval Olvera, Consejo Nacional de Industriales Ecologistas (CONIECO), México D.F./MEX

20:00 - 22:00  
Welcome reception for conference participants and exhibitors

Wednesday, April 13, 2005

13:15 - 14:00  
Plenary Lecture  
Trends in modern refining and petrochemicals production  
Jens Weitkamp, University of Stuttgart/D

Thursday, April 14, 2005

13:15 - 14:00  
Plenary Lecture  
The water situation in México  
Minister Alberto Cárdenas Jiménez, Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), Government of México/MEX

16:00 - 17:00  
Keynote Lecture  
Membrane bioreactors in industrial wastewater treatment - European experiences, examples and trends  
Peter Cornel, Technical University, Darmstadt/D

Friday, April 15, 2005

13:15 - 14:00  
Plenary Lecture  
Integration of advanced energy systems in the refining and petrochemical industry  
Ricardo R. Rivero, IMP Instituto Mexicano del Petroleo, México D.F./MEX

16:00 - 17:00  
Keynote Lecture  
Biological inhouse-treatment of fatty matters - fat and oil degreasing reactors in the industry  
Peter M. Kunz, University of Applied Sciences, Mannheim/D

Detailed Program Water and Waste Water Management  
see page 2

Detailed Program Novel Processes for Refining and Petrochemicals  
see page 7

Detailed Program Special Sessions  
TIB/UB Hannover  
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**Water and Wastewater Management**

**Tuesday, April 12, 2005  Room Forum**

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<td>10:00 – 12:00</td>
<td>Opening in the exhibition hall</td>
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<td><strong>Chair:</strong></td>
<td>A. Oberholz, Degussa AG, Düsseldorf/D</td>
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<tr>
<td>17:00 – 18:00</td>
<td>Plenary Lecture</td>
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<td></td>
<td><strong>Perspectiva de la petroquímica en México</strong></td>
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<td>Rafael Beverido, PEMEX Petroquímica/MEX</td>
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<td>18:00 – 19:00</td>
<td>Plenary Lecture</td>
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<td><strong>Recent developments in México's environmental industry</strong></td>
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<td>Carlos Sandoval Olvera, Consejo Nacional de Industriales, Ecologistas</td>
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<td>(CONIECO), México D.F./MEX</td>
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<tr>
<td>20:00 – 22:00</td>
<td>Welcome reception for conference participants and exhibitors</td>
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**Wednesday, April 13, 2005  Room Palenque**

**WATER TREATMENT AND REUSE**

*Chair: P.M. Kunz, University of Applied Sciences, Mannheim/D*

<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>11:00</td>
<td><strong>Photocatalytic degradation of paraquat in semiconductor suspensions</strong></td>
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<td></td>
<td>E. Moctezuma, E. Leyva, S. Oros, A. Hernandez, Universidad Autónoma de</td>
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<td>San Luis Potosí/MEX</td>
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<tr>
<td>11:30</td>
<td><strong>Degradation of microcystin-LR toxin in water using advanced oxidation</strong></td>
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<tr>
<td></td>
<td>technologies</td>
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<td>E.R. Bandala, D. Martinez, R. Melo, Instituto Mexicano de Tecnología del</td>
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<td></td>
<td>Agua, Morelos/MEX</td>
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<td>12:00</td>
<td><strong>Planted soil filter systems for producing irrigation water from domestic</strong></td>
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<td>sewage</td>
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<td>R.A. Mueller, N. Seyring, P. Kuschk, P. Mosig, O. Baeder-Bederski, UFZ</td>
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<td>Center for Environmental Research Leipzig-Halle GmbH/D; J. Niklas, Oekotec</td>
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<td>GmbH, Belzig/D</td>
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<td>12:30</td>
<td><strong>Advanced treated wastewater as an important resource for supporting and</strong></td>
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<td>improving the water situation in the region south of Berlin**</td>
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<td>B. Heinzmann, Berliner Wasserbetriebe/D; K. Moeller, UBB Umweltvorhaben</td>
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<td>Berlin-Brandenburg Dr. Klaus Moeller GmbH, Berlin/D</td>
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Wednesday, April 13, 2005

Chair: R.R. Rivero, IMP Instituto Mexicano del Petroleo, México D.F./MEX

13:15 – 14:00 Plenary Lecture (together with Petrochemistry Congress)
Trends in modern refining and petrochemicals production
Jens Weitkamp, University of Stuttgart/D

WATER MANAGEMENT
Chair: P. Cornel, Technical University, Darmstadt/D

16:00 Model-based design and control of wastewater treatment plants: opportunities and limitations
J. Busch, A. Cruse, W. Marquardt, RWTH Aachen

16:30 Inhibitory wastewaters degradation using a discontinuous bioreactor
I. Moreno-Andrade, G. Buitrón, M.J. Betancur, J.A. Moreno, UNAM, México D.F./MEX

17:00 Automatization and control of an anaerobic-aerobic process suitable for the degradation of industrial wastewater
K.M. Martínez, A. Vargas, G. Buitrón, UNAM, México D.F./MEX

17:30 Coffee break

18:00 Monitoring techniques for the evaluation of spatial and temporal variations in water quality of Lis river basin (Portugal)
J. Vieira, Technology School of Leiria/P and University of Porto/P; C. Botelho, R. Boaventura, University of Porto/P

18:30 Waste water management: case study
M.I. Alahmad, College of Engineering, Riyadh/KSA

19:00 Wastewater management in an industrial complex – an Indian case study
K.L. Rao, P. Sridhar, M. Ratna Kumar, Jeedimetla Effluent Treatment Ltd., Hyderabad/IND
Thursday, April 14, 2005  

WASTEWATER TREATMENT  
Physico/chemical and combined treatment technologies  
Chair: P. Brechtelsbauer, Hans Huber AG, Berching/D

11:00  
Chemical coagulation for color removal from textile effluents - the case of Reactive Black 5 dye  
M. Janeczko, S. Gaydardzhiev, Brandenburg University of Technology, Cottbus/D

11:30  
Removal of Cr (VI) from wastewaters in a flow reactor by means of an electrochemical process  
S. Martinez, M. Rodríguez, R. Aguilar, R. Luna, Universidad Autónoma Metropolitana – Azcapotzalco, México D.F./MEX

12:00  
Equilibrium and kinetic modelling of Pb²⁺ biosorption by granulated agar extraction algal waste  
V.J.P. Vilar, Universidade do Porto/P; F. Sebesta, Czech Technical University, Prague/CH; C.M.S. Botelho, R.A.R. Boaventura, Universidade do Porto/P

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Thursday, April 14, 2005  

Chair: J. Weitkamp, University of Stuttgart/D

13:15 – 14:00 Plenary Lecture  
The water situation in México (together with Petrochemistry Congress)  
Minister Alberto Cárdenas Jiménez, Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), Government of México/MEX

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Chair: P.M. Kunz, University of Applied Sciences, Mannheim/D

16:00 Keynote Lecture  
Membrane bioreactors in industrial waste water treatment - European experiences, examples and trends  
Peter Cornel, Technical University, Darmstadt/D

17:00 Further improvements of membrane systems for MBRs  
C. Roedlich, Huber Technology Inc., Huntersville, NCUSA; P. Brechtelsbauer, Hans Huber AG, Berching/D

17:30 Coffee break
18:00
Reuse: Degremont experiences
L. Equihua, Degremont S.A. de México/MEX; C. Langlais, Degremont R&D, Rueil-Malmaison/F

18:30
Modular concepts for the treatment of industrial waste water with compact evaporators
W. Hansen, GEA Wiegand GmbH, Ettlingen/D

19:00
Sollutions of pollution problems in heat transfer equipment
A. Matosovic, Georg Schuenemann GmbH, Bremen/D

Friday, April 15, 2005

WASTEWATER TREATMENT
Biological treatment technologies
Chair: M. van Afferden, Instituto Mexicano de Tecnologia del Aqua (IMTA), Jiutepec, Mor./MEX

11:00
Treatment of tannery effluent in México: prospects for innovative, affordable industrial wastewater treatment in Latin America

11:30
Research and development in México on simultaneous methanogenic-aerobic and simultaneous methanogenic-denitrification reactors for removal of toxic compounds from polluted waters: the contribution of CINVESTAV-IPN
H.M. Poggi-Varaldo, C. Garibay-Orijel, P. Zárate-Segura, D. Herrera, J. García-Mena, CINVESTAV-IPN, México D.F./MEX

12:00
Mathematical modeling of degradation kinetics of an anaerobic-aerobic bioprocess used for industrial wastewater treatment
A. Vargas, G. Buitrón, UNAM, México D.F./MEX

12:30
Influence of material textile as support for nitrifying bacteria in a Rotating Disc Reactor RDR
C. Antileo, A. Werner, C. Bornhardt, C. Muñoz, University of La Frontera Cas. 54-D, Temuco/RCH
Friday, April 15, 2005

Room Forum

Chair: G. Kreysa, DECHEMA e.V., Frankfurt am Main/D

13:15 – 14:00 Plenary Lecture (together with Petrochemistry Congress)
Integration of advanced energy systems in the refining and petrochemical industry
Ricardo R. Rivero, IMP Institute Mexicano del Petroleo, México D.F./MEX

Room Palenque

Chair: S. Gonzalez-Martinez, National University of Mexico, Mexico D.F./MEX

16:00 Keynote Lecture
Biological inhouse-treatment of fatty matters – fat and oil degreasing reactors in the industry
Peter M. Kunz, University of Applied Sciences, Mannheim/D

17:00 Comparison of three commercial biofilm support media for municipal wastewater aerobic filtration
S. González-Martínez, A. Valdivia, National University of México/MEX; P.A. Wilderer, Technical University of Munich/D

17:30 Coffee break

18:00 Waste treatment managed by Bayer
O. Carbajal Alvarado, Bayer Technology Services, México D.F./MEX

18:30 Sisal ("henequén") liquor ethanol distilling plants vinasses treatment using anaerobic microbial consortia
A. Castro-González, M. Bernal-González, C. Durán-de-Bazúa, Universidad Nacional Autónoma de México, México D.F./MEX

19:00 Industrial wastewater treatment and water recycling
E. Billenkamp, Enviro-Chemie, Rio de Janeiro/BR
**Novel Processes for Refining and Petrochemicals**

**Tuesday, April 12, 2005**

**Room Forum**

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Plenary Lecture
*Perspectiva de la petroquímica en México*
Rafael Beverido, PEMEX Petroquímica/MEX

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*Recent developments in México's environmental industry*
Carlos Sandoval Olvera, Consejo Nacional de Industriales Ecologistas (CONIECO), México D.F./MEX

**20:00 – 22:00**
Welcome reception for conference participants and exhibitors

**Wednesday, April 13, 2005**

**Room Montealban**

**EQUIPMENT AND FACILITIES OPERATION**

*Chair: R.R. Rivero, IMP Instituto Mexicano del Petroleo, México D.F./MEX*

**11:00**
*A zero-leakage spool pump for petrochemical service*
B.R. Nair, Curtiss-Wright Electro-Mechanical Corporation, Cheswick, PA/USA

**11:30**
*Ejectors used in vacuum pump systems in the chemical and petrochemical industries*
W. Hansen, GEA Jet Pumps GmbH, Ettlingen/D

**12:00**
*Gas seals reduce emission*
J. Delrahim, John Crane Inc., Morton Grove, IL/USA

**12:30**
*Networking and development of databases on properties of substances and materials in different subject directions of science, engineering and technology and some issues of economic efficiency resulted from the use of standard data on properties of substances and materials*
T.V. Golashvili, M.V. Pozdeev, E.S. Pugacheva, Central Research Institute of Management, Economics and Information, Moscow/RUS
Wednesday, April 13, 2005

Chair: R.R. Rivero, IMP Instituto Mexicano del Petroleo, México D.F./MEX

13:15 – 14:00
Plenary Lecture (together with Water Management Congress) 18
Trends in modern refining and petrochemicals production
Jens Weitkamp, University of Stuttgart/D

CRACKING PROCESSES: PRODUCTION OF FUELS AND OLEFINs
Chair: V.V. Wadekar, HTFS, Aspen Technology Group, Harwell, Oxfordshire/UK

16:00
The ThermoCatalytic Cracking (TCC) process for the production of light olefins and transportation fuels from gas oils and other heavy distillates
R. Le Van Mao, N.-T. Vu, N. Al-Yassir, Concordia University, Montreal/CDN;
J. Monnier, CANMET Energy Technology Centre-Ottawa (CETC-Ottawa), Nepean/CDN

16:30
Development of a high-severity FCC process: an overview
T. Ino, Y. Fujiyama, Nippon Oil Corporation, Tokyo/J; H.H. Redhwi, R. Saeed,
M. Abul-Hamayel, A. Aitani, King Fahd University of Petroleum & Minerals,
Dhahran/KSA, K. Kleemeier, C. Dean, M. Al-Nemer, M.D. Al-Khudhairi, Saudi Aramco,
Dhahran/KSA

17:00
Production of synfuels and petrochemicals by processing oil shales, organic residues and wastes
J. Soone, N. Golubev, TTU, Tallinn/EST

17:30 Coffee break

18:00
Combined production of olefins and synthesis gas by thermal partial oxidation of hydrocarbons
B. Bartenbach, J. Proelss, P. Schmitz-Baeder, C. Weichert, BASF Aktiengesellschaft,
Ludwigshafen/D

18:30
Achieving manufacturing excellence in olefin production
Z. Alzein, P. Kelly, B. Sheehan, Honeywell Process Solutions, Phoenix, AZ/USA

19:00
A new method for catalytic conversion of Iran bitumen into middle distillates
B. Roozbehani, N. Jadidi, Petroleum University of Technology, Tehran/IR
HYDROTREATING AND USE OF RESIDUES
Chair: R.R. Rivero, IMP Instituto Mexicano del Petroleo, México D.F./MEX

10:30
IGCC based integrated modular concept of refinery residue based process power plants
F. van Laerhoven, W. Nobel, Continental Engineers, Zaandam/NL;
U. Schiffers, W. Guenster; Siemens Aktiengesellschaft, Power Generation/D

11:00
Hydrogen production via steam-gasification of petroleum coke using concentrated solar power
D. Trommer, ETH – Swiss Federal Institute of Technology, Zuerich/CH; M. Romero,
CIEMAT – Centro de Investigaciones Energéticas Medio Ambientales y Tecnológicas/E; H. Rivas, INTEVEP-PDVSA – Petróleos de Venezuela S.A/YV;
A. Steinfeld, ETH – Swiss Federal Institute of Technology, Zuerich/CH and Paul Scherrer Institute, Villingen/CH

11:30
Maya crude hydrometallization catalyst and its characteristics
M.S. Rana, J. Ancheyta, S.K. Maity, Instituto Mexicano del Petróleo, México D.F./MEX

12:00
Transition metal carbides and phosphides for reduction of sulfur and nitrogen content in heavy vacuum gas oil

12:30
Deep desulfurization of oil refining streams by extraction with ionic liquids
C. Hilgers, A. Jess, J. Esser, Solvent Innovation, Cologne/D

Room Forum
Chair: J. Weitkamp, University of Stuttgart/D

13:15 – 14:00
Plenary Lecture (together with Water Management Congress)
The water situation in México
Minister Alberto Cárdenas Jiménez, Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT), Government of México/MEX
PROCESS HEAT TRANSFER EQUIPMENT
Chair: V.V. Wadekar, HTFS, Aspen Technology Group, Harwell, Oxfordshire/UK

16:00
**Modelling of advanced heat exchangers in process plants** 86
V.V. Wadekar, HTFS, Aspen Technology Group, Harwell, Oxfordshire/UK

16:30
**Rigorous simulation of heat exchangers in process simulators** 87
R. Gonzalez, Instituto Mexicano del Petroleo/MEX; E. Hernandez, Aspen Technology Inc., Houston, TX/USA

17:00
**A highly efficient alternative to kettle type shell-and-tube heat exchangers** 88
R.H. Weaver, Jr., Chart Heat Exchangers, La Crosse, WI/USA

17:30 Coffee break

18:00
**Twisted Tube® technology in refining applications** 89
R. Covey, Brown Fintube Company, Houston, TX/USA

18:30
**Compact heat exchangers dramatically improve heat recovery in the petrochemical industry** 90
C. Wajciechowski, Alfa Laval Inc., Richmond, VA/USA

19:00
**Designing cooling systems in process plants** 91
A. Morales-Fuentes, M. Picón Núñez, University of Guanajuato, Gto/MEX
CONVERSION TO HIGHER VALUE PRODUCTS AND CATALYSIS
Chair: L. Espinosa Ruiz, President of IMIQ, Instituto Mexicano de Ingenieros Químicos, A.C., México, D.F./MEX

11:00
Setting new standards in the production of α-olefins
P. Richter, Saudi Basic Industries Corporation - SABIC, Riyadh/KSA

11:30
Novel process for highly selective synthesis of benzyl acetate by selective gas phase acetoxylation of toluene
A. Benhmid, K.V. Narayana, A. Martin, B. Luecke, U. Dingerdissen, Institut fuer Angewandte Chemie Berlin-Adlershof e.V./D

12:00
Pt/Co₂ catalyst for selective CO oxidation in a H₂-rich environment
J.L. Ayastuy, M.P. González-Marcos, J.R. González-Velasco, M.A. Gutiérrez-Ortiz, Universidad del País Vasco, Bilbao/E

12:30
Oxygen enrichment in fluid catalytic crackers (FCC units)
J. Basurto Villa, AGA Gas, Mexico/MEX; M. Heisel, Linde Gas

WASTE REUSE FOR ENERGY PRODUCTION (parallel Session)
Chair: P.M. Kunz, University of Applied Sciences, Mannheim/D

11:30
Decision support model for a sustainable waste management system
E. Márquez Oropeza, K. Keldenich, FhU-UMSICHT, Oberhausen/D; H. Fahlenkamp, University of Dortmund/D

12:00
Production of alternative fuels from farming and municipal solid wastes
J.C. Peraza Lizama, A. Garcia Lira, Universidad Autonoma de Yucatan, Mérida/MEX

12:30
Biological hydrogen from organic solid wastes in México: a contribution to sustainable development
H.M. Poggi-Varaldo, I. Valdez-Vázquez, CINVESTAV-IPN, México D.F./MEX
13:15 – 14:00  Plenary Lecture (together with Water Management Congress)  
Integration of advanced energy systems in the refining and petrochemical industry  
Ricardo R. Rivero, IMP Instituto Mexicano del Petroleo, Mexico D.F./MEX

ENVIRONMENTAL TECHNOLOGIES FOR REFINERIES  
Chair: M. van Afferden, Instituto Mexicano de Tecnologia del Aqua (IMTA), Jiutepec, Morelos/MEX

16:00  
Biodegradation of emulsions containing oil mixture and surfactants employing thermophilic bacteria  
J. Wilkesman, University of Carabobo, Valencia/YS; P.M. Kunz, Mannheim University of Applied Sciences/D

16:30  
Microcalorimetric studies of the interaction of phenol and SDS micelles in O/W microemulsion  

17:00  
Subcritical water extraction of hydrophobic compounds from solid matrixes  
E. Moreno, J. Reza, A. Trejo, Instituto Mexicano del Petroleo, Mexico, D.F./MEX

17:30  
Biological-physical-chemical refinery wastewater effluent treatment  
J.A. Hernández, Environmental Resources Management, Guaynabo, PR/USA
**Special Sessions**

**Wednesday, April 13, 2005**

**IMIQ – INSTITUTO MEXICANO DE INGENIEROS QUIMICOS, SPECIAL SESSION**  
*Chair: L. Espinosa Ruiz, President of IMIQ, Instituto Mexicano de Ingenieros Químicos, A.C., México, D.F./MEX*

**11:30**  
*Application of computacional fluid dynamics (CFD) to identify flow patterns in cyclonic separators*  
R. López-Rodríguez, D. Pacho-Carrillo, Universidad Autónoma de Yucatán, Mérida/MEX

**12:00**  
*Improving internal distribution in an oil-water eliminator using CFD*  
L. Fernández-Moquel, P. Brito-Parada, D. Pacho-Carrillo, University of Yucatán, Mérida/MEX

**12:30**  
*Magnesium compounds as by-products of sea-salt production*  
A. Garcia Lira, J.C. Peraza Lizama, Universidad Autónoma de Yucatán, Merida/MEX

*Chair: R.R. Rivero, IMP Instituto Mexicano del Petroleo, México D.F./MEX*

**13:15 – 14:00**  
*Plenary Lecture*  
*Trends in modern refining and petrochemicals production*  
Jens Weitkamp, University of Stuttgart/D

*Chair: L. Espinosa Ruiz, President of IMIQ, Instituto Mexicano de Ingenieros Químicos, A.C., México, D.F./MEX*

**16:00**  
*Modelling and simulation of the production and downstream processing of enzyme preparations produced by the fermentation of the tortilla making industry*  
H. Gonzalez Barrera, D. Pacho, R. Domínguez, University of Yucatan, Merida/MEX

**16:30**  
*Product development and process design for the production of probiotic aloe vera drink*  
M.E. Contreras Pinzon, D. Pacho, A. González, R. Domínguez-Espinosa, University of Yucatan, Merida/MEX

**17:00** Break
The International Social Security Association (ISSA) is a world organization of agencies responsible for social security systems, based in Geneva, Switzerland. It was founded in 1927 and now has over 350 members in some 140 countries around the world. Its objective is to promote social security throughout the world. ISSA provides an international forum for exchanging information and experiences, organizes international meetings and publishes literature on social security issues (more information at www.issa.int).

The ISSA organization’s Special Commission for Prevention with its 11 International Sections promotes prevention, particularly in the fields of occupational safety and health. Two of these sections, namely

- the International Section for Chemistry (more information at http://chemistry.prevention.issa.int)
- the International Section for Electricity (more information at http://electricity.prevention.issa.int)

will organize the following International Symposium.

The symposium is open to everyone. It is aimed particularly at people in industry, institutions and public agencies who are interested and involved in the field of prevention in occupational safety and health. There is no limit to the number of participants.

There is no separate fee for participation in the symposium, however an admission ticket for ACHEMAMERICA is required.

11:00
Opening words
E. Radek, BG Chemie (Institution for Statutory Insurance and Prevention in the Chemical Industry)/D, President of the ISSA Chemistry Section

11:15
Welcome address
P. Weinert, ISSA General Secretariat/CH
11:30
New developments in plant safety
K. Bartels, BG Chemie/D

12:00
Explosions – hazards and protection measures – an interactive tutorial for accident prevention
R. Ott, SUVA (Swiss National Accident Insurance Fund)/CH

12:30
Heightened electrical danger in confined spaces - measures for avoiding electrical accidents in spaces with limited freedom of movement
S. Boesen, BGFE (Institution for Statutory Insurance and Prevention in Precision Mechanics and Electrical Engineering)/D; ISSA Electricity Section

Chair: J. Weitkamp, University of Stuttgart/D

13:15 – 14:00 Plenary Lecture
The water situation in México
Minister Alberto Cárdenas Jiménez, Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT), Government of México/MEX

16:00
Organizing the selection of suitable skilled personnel - guidelines for assessing the abilities of personnel for working with live voltage
J. Juehling, BGFE/D; ISSA Electricity Section

16:30
Chemical risk assessment for human health: consequences at the workplace
A. Laudet, Institut National de Recherche et de Sécurité (National Institute for Research and Safety)/F

17:00
Psychology of error and the design of human-machine interfaces and alarm management
B. Ludborzs, BG Chemie/D

17:30
Summary of results and outlook
K. Bartels, BG Chemie/D; Secretary General of the ISSA Chemistry Section
WASTE REUSE FOR ENERGY PRODUCTION (parallel Session)
Chair: P.M. Kunz, University of Applied Sciences, Mannheim/D

11:30
Decision support model for a sustainable waste management system 97
E. Márquez Oropeza, K. Keldenich, FhI-UMSICHT, Oberhausen/D; H. Fahlenkamp, University of Dortmund/D

12:00
Production of alternative fuels from farming and municipal solid wastes 98
J.C. Peraza Lizama, A. Garcia Lira, Universidad Autonoma de Yucatan, Mérida/MEX

12:30
Biological hydrogen from organic solid wastes in México: a contribution to sustainable development 99
H.M. Poggi-Varaldo, I. Valdez-Vázquez, CINVESTAV-IPN, México D.F./MEX

Chair: G. Kreysa, DECHEMA e.V., Frankfurt am Main/D

13:15 – 14:00 Plenary Lecture (together with Water Management Congress) 21
Integration of advanced energy systems in the refining and petrochemical industry
Ricardo R. Rivero, IMP Instituto Mexicano del Petroleo, México D.F./MEX

COMPANY PRESENTATIONS

16:20
APV hybrid – welded plate heat exchanger 121
D. Pathak, AVP Products, Goldsboro, NC/USA

16:40
Mejoras en la producción y uso más eficiente del Hidrógeno 129
J. Anaya Izquierdo, AGA Gas, S.A. de C.V., Tlalnepantla/MEX

17:00
Operations intelligence 130
S. Schell, Siemens/MX