

# *Outline programme*

## *Disinfection of Water, Wastewater and Biosolids Conference*

*25-29 November 2012*

### *Sunday, 25th November*

|               |   |
|---------------|---|
| 08:20         | Transport to Workshop venue (Academia Mexicana de Ciencias) from Radisson Hotel                       |
| 09:00 - 16:00 | Workshop "Basics of UV Disinfection for Water, Wastewater and Reuse Applications" (organized by IUVA) |
| 18:00 - 20:00 | Welcome reception   |

### *Monday, 26th November*

|               |   |              |
|---------------|---|--------------|
| 07:45         | Transport to conference venue from Radisson Hotel and Metro Copilco   |              |
| 08:30 - 17:00 | Registration  |              |
| 09:30 - 10:30 | Opening Ceremony  |              |
| 10:30 - 11:30 | Keynote speech  |              |
| 11:30 - 11:45 | Coffee break  |              |
| 11:45 - 12:45 | Session 1A. Basic and applied research in disinfection and inactivation technologies                          | Auditorium A |
| 11:45 - 12:45 | Session 1B. Basic and applied research in emerging disinfectants  | Auditorium B |
| 12:45 - 14:00 | Lunch   |              |
| 14:00 - 14:30 | Poster presentations and Exhibitions  |              |
| 14:30 - 15:30 | Session 2A. Basic and applied research in disinfection and inactivation technologies                          | Auditorium A |
| 14:30 - 15:30 | Session 2B. Public health risks and issues related to disinfection and inactivation processes and Legislation | Auditorium B |
| 15.50 - 16.10 | Coffee break  |              |
| 16.40 - 17:40 | Session 3A. Basic research in UV disinfection   | Auditorium A |
|               | Session 3B. Advanced oxidation processes (AOP)  | Auditorium B |
| 18.00         | Transport to Radisson Hotel and Metro Copilco   |              |

### *Tuesday 27th November*

|               |   |
|---------------|---|
| 08:30         | Transport to conference venue from Radisson Hotel and Metro Copilco |
| 08:30 - 09:30 | Keynote speech  |
| 10:30 - 10:45 | Coffee break  |

|               |  |              |
|---------------|--|--------------|
| 10:45 – 13:00 | Session 4A. Basic and applied research in disinfection and inactivation technologies                       | Auditorium A |
| 10:45 – 13:00 | Session 4B. Case studies of disinfection and inactivation processes: opportunities, problems and solutions | Auditorium B |
| 13:00 – 14:00 | Lunch  |              |
| 14:00 – 14:30 | Poster presentations and Exhibitions   |              |
| 14:30 – 15:50 | Session 5A. Disinfection by-products and precursors  | Auditorium A |
| 14:30 – 15:50 | Session 5B. Technical-commercial presentation  | Auditorium B |
| 15:50 – 16:10 | Coffee break   |              |
| 16:15 – 17:15 | Keynote speech   |              |
| 17:15 – 18:45 | Session 6A. Sludge Treatment   | Auditorium A |
| 19:00         | Transport to Gala Dinner   |              |
| 20:00 – 23:00 | Gala Dinner  |              |
| 23:00         | Transport to Radisson Hotel and Metro Copilco  |              |

## *Wednesday 28th November*

|               |  |              |
|---------------|--|--------------|
| 08:30         | Transport to conference venue from Radisson Hotel and Metro Copilco                  |              |
| 09:30 – 10:30 | Keynote speeches   |              |
| 10:30 – 10:45 | Coffee break   |              |
| 10:45 – 13:30 | Session 7A. Basic and applied research in disinfection and inactivation technologies | Auditorium A |
| 10:45 – 11:45 | Session 7B1. Advanced oxidation processes (AOP)                                      | Auditorium B |
| 11:45 – 13:40 | Session 7B2. Applied research in disinfection and inactivation technologies          | Auditorium B |
| 13:30 – 14:30 | Closing Ceremony   | Auditorium A |
| 14:30 – 15:30 | Lunch  |              |
| 16:00 – 17:00 | Transport to Radisson Hotel and Metro Copilco  |              |

## *Thursday 29th November*

|               |  |       |
|---------------|--|-------|
|               | Visits pick-up and drop-off from Radisson Hotel    |       |
| 06:30 – 17:00 | Technical tour - Tula Valley (or Mezquital Valley) | Bus 1 |
| 06:30 – 17:00 | Technical tour - Cutzamala System                  | Bus 2 |

## Detailed programme

### Sunday, 25th November

- 08:20 Transport to Workshop venue (Academia Mexicana de Ciencias) from Radisson Hotel
- 09:00 - 16:00 **Workshop. "Basics of UV Disinfection for Water, Wastewater and Reuse Applications"**  
Organized by IUVA (International Ultraviolet Association)  
For more information see: <http://iuva.org/event/basics-uv-disinfection-w>  
(Contact: Deborah Martinez, Executive Director, Deb.martinez@iuva.org, 202-422-2445)
- 18:00 - 20:00 **Welcome reception**

### Monday, 26th November

- 07:45 Transport to conference venue from Radisson Hotel and Metro Copilco
- 08:30 - 17:00 Registration and Coffee Break
- 09:30 - 10:30 Opening Ceremony
- 10:30 - 11:30 **Keynote speech**  
**Progress and pitfalls in water disinfection**  
Prof. Dr. Regina Sommer, Medical University Vienna
- 11:30 - 11:45 Coffee break

#### Auditorium A **Session 1A. Basic and applied research in disinfection and inactivation technologies**

*Chairman: Haim Chikurel*

- 11:45 - 12:15 **Comparative study of four wastewater disinfection techniques for water reuse applications with special emphasis on microbial stability of the effluents**  
A. Bischoff, P. Cornel and M. Wagner  
Germany
- 12:15 - 12:45 **Municipal wastewater disinfection by coupling coagulation-flocculation and ozonation**  
E. Zamudio, I. Chairez and L. G. Torres.  
Mexico

#### Auditorium B **Session 1B. Basic and applied research in emerging disinfectants**

*Chairman: Robin Gramstad*

- 11:45 – 12:15 **Full-Scale evaluation of UV and peracetic acid as alternative disinfecting agents to chlorine in WWTPs**  
A. Chiavola, R. Gavasci, P. Sirini, M. Spizzirri and A. Zanobini  
Italy
- 12:15 – 12:45 **Peracetic acid for secondary effluent disinfection: a Global Performance Assessment**  
A. Turolla, M. Antonelli, V. Mezzanotte and C. Nurizzo  
Italy
- 12:45 – 14:00 Lunch
- 14:00 – 14:30 Poster presentations and Exhibitions

**Auditorium A** **Session 2A. Basic and applied research in disinfection and inactivation technologies**

*Chairman: Kara Nelson*

- 14:30 – 14:50 **Performic Acid in wastewater disinfection treatments: Full scale comparisons and evaluations**  
P. Ragazzo, N. Chiucchini, V. Piccolo, M. Ostoich  
Italy
- 14:50 – 15:10 **Disinfection of tertiary wastewater effluent prior to river discharge dosing peracetic acid. Treatment efficiency and results on by-products formed in full scale tests**  
Per Overgaard Pedersen and Erling Brodersen  
Denmark
- 15:10 – 15:30 **Resistance of a wide spectrum of microorganisms to diverse disinfection systems to produce safe reuse water**  
Maya C., Chávez A., Lucario E., Hernández E. and Jiménez B.  
Mexico
- 15:30 – 15:50 **Multiple-barrier household water disinfection system evaluation**  
A C Espinosa-García, R Solano-Ortiz, M A Tapia-Palacios, N Vázquez-Salvador, S Espinosa-García, R E Sarmiento-Silva, Carlos Díaz-Ávalos and M Mazari-Hiriart  
Mexico

**Auditorium B** **Session 2B. Public health risks and issues related to disinfection and inactivation processes and Legislation**

*Chairman: Inés Navarro*

- 14:30 – 14:50 **Implementation proposal of safety plan for reuse of treated wastewater in green areas, Case Study: University City**  
Orta de Velásquez M. T., Yañez-Noguez I., González Villarreal F.J. and García Santiago E.I  
Mexico
- 14:50 – 15:10 **Risk analysis and disinfection plan proposal related with microbial water contamination in the Magdalena River, Mexico City**  
Pérez-Ortiz, G., A. Espinosa-García, M. J. Aguilar-Medina, Y. López Vidal and M. Mazari-Hiriart  
Mexico

15:10 – 15:30      **Regulations for Equipment and Methods of Disinfection for Effluent Water from Fish Slaughter and Processing Plants and Chemical Disinfectants for Technical Use in Aquaculture Systems**  
Semir Loncarevic  
Norway

15:30 – 15:50      **Alternative water quality indicators applied in Mexico City**  
Fonseca-Salazar M.A, N. Vázquez-Salvador, A.C. Espinosa-García and F. J. González-Villarreal  
Mexico

15:50 – 16:10      Coffee break

**Auditorium A      Session 3A. Basic research in UV disinfection**

*Chairman: Teresa Orta*

16:10 – 16:40      **Evaluation of UV reactor performance with a new “detector-model” combination method**  
Mengkai Li, Zhimin Qiang and James R. Bolton  
China

16:40 – 17:10      **Free Surface Effects and UV Disinfection in Open Channel UV Reactors**  
B. Peng, D. Santoro, M. Sasges, B. Petri, and D. Olson  
Canada

17:10 – 17:40      **Enhancing Ultraviolet Disinfection by Provision of Air Bubbles in Nano-Micron Size**  
Y. Chen, H. Liao, J.Y. Fang, C. Shang and Y. Xu  
Hong Kong

**Auditorium B      Session 3B. Advanced oxidation processes (AOP)**

*Chairman: Chao Chen*

16:10 – 16:40      **A New Production process of Fenton type nanocatalysts (FeOx/C) synthesized for the inactivation of Ascaris eggs in water**  
Ariadna. A. Morales, Rafael Schouwenaars, Heriberto Pfeiffer and Rosa María Ramírez Zamora  
Mexico

16:40 – 17:10      **Evaluation tests of a heterogeneous Fenton process applying iron swarf as catalyst for disinfection purposes under continuous flow operation**  
Deisy Hernández Hernández, Abelardo González Aragón, Alethia Vázquez Morillas, Margarita Beltrán Villavicencio and Raúl Hachec Luna  
Mexico

17:10 – 17:40      **Inactivation of bacteria and helminth in wastewater treatment plant effluent using oxidative processes**  
Regiane Aparecida Guadagnini, Luciana Urbano dos Santos, Regina Maura Bueno Franco and José Roberto Guimarães  
Brazil

18:00              Transport to Radisson Hotel and Metro Copilco

## Tuesday 27th November

08:30 Transport to conference venue from Radisson Hotel and Metro Copilco

09:30 - 10:30 **Keynote speech**  
**The influence of particle removal on chlorine, UV and Ozone disinfection of secondary treated effluents**  
Dr. Haim Cikurel  
Chemical and Environmental Engineering Services

10:30 - 10:45 Coffee break

### **Auditorium A**      **Session 4A. Basic and applied research in disinfection and inactivation technologies**

*Chairman: Kara Nelson*

10:45 - 11:15 **Development, challenges and validation of a high-efficiency UV system for water reuse and low effluent quality wastewater**  
Keith Bircher, Bill Sotirakos and Andrew Salveson  
Canada

11:15 - 12:00 **UV disinfection of drinking water: Quality management once and now**  
Regina Sommer, Alexander Cabaj, Georg Hirschmann and Thomas Haider  
Austria

12:00 - 12:30 **Design considerations to minimize the electrical energy of a UV Disinfection System**  
Adam Festger, Scott Bindner and Ji An  
Canada

12.30 - 13.00 **Advances in UV dose monitoring for drinking water and wastewater applications**  
Harold Wright, Mark Heath, Jeff Bandy and Keith Bircher  
USA

### **Auditorium B**      **Session 4B. Case studies of disinfection and inactivation processes: opportunities, problems and solutions**

*Chairman: Astrid Bishoff*

10:45 - 11:20 **Safeguarding public health in Mexico using UV disinfection for Lake Chapala**  
Wayne Lem and Jennifer Muller  
Canada

11:20 - 11:50 **Case study of implementation of sequential disinfection in the inactivation of microorganisms in a real scale WWTP**  
R.C. Medeiros, L. Sartori and L.A. Daniel  
Brazil

11:50 - 12:25 **Evaluation of the field efficacy of a household UV water disinfection system: The Mesita Azul randomized control stepped wedge trial in Baja California Sur, Mexico**  
Fermin Reygadas, Joshua S Gruber, Isha Ray, John M Colford Jr. and Kara Nelson  
USA



- 12:25 – 13:00 **Disinfection in car wash wastewater reclamation units in South Brazil**  
Rafael Newton Zaneti, Ramiro Etchepare, André Azevedo,  
Marcelo Bauer and Jorge Rubio  
Brazil
- 13:00 – 14:00 Lunch
- 14.00 – 14:30 Poster presentations and Exhibitions

**Auditorium A** **Session 5A. Disinfection by-products and precursors**

*Chairman: Regina Sommer*

- 14:30 – 14:50 **Formation and removal of disinfection by-products in swimming pool water treatment: first experience using a pilot scale swimming pool model**  
S. Uhlig, B. Skibinski and W. Uhl  
Germany
- 14:50 – 15:10 **Variable reactivity modeling for chlorine decay and THM formation in drinking water distribution system**  
Pei Hua, Klaus Ripl, Ekaterina Vasyukova and Wolfgang Uhl  
Germany
- 15:10 – 15:30 **Degradation of Nitrogenous Disinfection By-products by Vacuum-Ultraviolet Photolysis**  
Jing-Yun Fang, Tat-Ming Sze and Chii Shang  
China – Hong Kong
- 15:30 – 15:50 **Efficiency of O<sub>3</sub>-BAC Process for N-nitrosamines Precursor removal in pilot-scale water treatment Plant**  
Xiaobin Liao, Jun Wang, Chengkun Wang, Xiaojian Zhang and Chao Chen  
China

**Auditorium B** **Session 5B. Technical-commercial presentation**

*Chairman: Jorge Rubio*

- 14:30 – 14:50 **DesinFix® – Chlorine-free disinfection for water reuse applications**  
R. Gramstad, U. Öjstedt, P. Pekonen, S. Laborda, C. Hohenthal  
and H. Heinonen-Tanski, S. K. Pradhan, K. Martikainen  
Sweden
- 14:50 – 15:10 **UV – Properties of disinfection and dechlorination**  
Alberto Helguera and Wesley Morin  
Mexico
- 15:10 – 15:30 **Membrane Bioreactors (MBR) – a key technology to meet the future demand for wastewater reuse**  
S. Meuler, T. Hackner, M. von Igel and A. Leitner  
Germany
- 15.30 – 15:50 **The UV disinfection for wastewater and drinking water. Implementation experience in Mexico**  
Ing. Lucina Equihua  
Mexico
- 15:50 – 16:10 Coffee break

|                     |  |
|---------------------|--|
| 16:15 – 17:15       | <p>Keynote speech<br/> Strategies and Challenges of Water Disinfection Supply System<br/> in the Mexico Valey, Estrategias y Desafios de la Desinfección del<br/> Agua en el Sistema de Abastecimiento del Valle de México<br/> Dr. Felipe I. Arreguin Cortés, CONAGUA</p>                       |
| <b>Auditorium A</b> | <p><b>Session 6A. Sludge Treatment</b><br/> <i>Chairman: Haim Chikurel</i></p>   |
| 17:15 – 17:45       | <p>Sewage treatment plant effluent for agricultural use<br/> K. Roest, H. Huiting and J.A.M.H. Hofman<br/> Netherlands</p>   |
| 17:45 – 18:15       | <p>Fecal coliforms and Salmonella spp reactivation/re-growth in samples<br/> of sludge pre-treated by different heating and cooling conditions<br/> Daniel de los Cobos Vasconcelos, Sergio Mauricio Magos Navarro,<br/> Margarita Elizabeth Cisneros Ortiz and Adalberto Noyola<br/> Mexico</p> |
| 18:15 – 18: 45      | <p>Disinfection of latrine waste with ammonia<br/> T. Ogunyoku and K.L. Nelson<br/> USA</p>  |
| 19:00               | Transport to Gala Dinner   |
| 20:00 – 23:00       | Gala Dinner  |
| 23:00 – 23:30       | Transport to Radisson Hotel and Metro Copilco  |

## Wednesday 28th November

|               |  |
|---------------|--|
| 08:30         | Transport to conference venue from Radisson Hotel and Metro Copilco  |
| 09:30 – 10:30 | <p>Keynote speeches<br/> Innovative technologies enable wastewater treatment plants<br/> Mr. David Tomowich<br/> Trojan Technologies</p> |
| 10:30 – 10:45 | Coffee break   |

|                     |   |
|---------------------|---|
| <b>Auditorium A</b> | <p><b>Session 7A. Basic and applied research in disinfection<br/> and inactivation technologies</b><br/> <i>Chairman: Marisa Mazari</i></p>   |
| 10:45 – 11:15       | <p>Effects of different weather conditions &amp; parameters on the efficiency of solar<br/> based disinfection of Pseudomonas aeruginosa in rooftop harvested rainwater<br/> M. Nawaz, M. T. Amin, M. Y. Han, A. A. Alazba and U. Manzoor<br/> Saudi Arabia</p> |
| 11:15 – 11:45       | <p>Progress on modeling sunlight disinfection of viruses<br/> M. Nguyen, A. Silverman, K.L. Nelson<br/> USA</p>   |



- 11:45 – 12:10      **Quantification of *Helicobacter pylori* by quantitative PCR (qPCR) in water disinfected with ozone**  
Casasola-Rodríguez B., Orta de Velásquez M.T., Luqueño Martínez V.G. and Monje-Ramírez I.  
Mexico
- 12:10 – 12:40      **Retention capacity of ceramic membranes on water containing various pathogen bacteria and different levels of turbidity**  
K. Matthies, K. Brändle and U. Obst  
Germany
- 12:40 – 13:10      **Optimization of the Ozone dosage at the drinking water treatment plant of Kluizen**  
Jan Cromphout, Walter Neiryck, Stefanie Goethals and Liesbeth Verdickt  
Belgium
- 13:10 – 13:30      **Case study: Methodology to design the ozone disinfection process for water supply system of University City – UNAM**  
Monje-Ramírez I., Orta de Velásquez M.T., Olivares-Watson G., Nava-Shimada R, Yañez-Noguez I. and González Villarreal F.J  
Mexico

**Auditorium B      Session 7B1. Advanced oxidation processes (AOP)**

*Chairman: Rosa María Ramírez*

- 10:45 – 11:15      **Modeling the enhanced solar photocatalytic disinfection of *Escherichia coli* using Nitrogen-doped TiO<sub>2</sub>**  
J. H. Castillo-Ledezma, A. López-Malo V., D.D. Dionisyou and E. R. Bandala  
Mexico
- 11:15 – 11:45      **Comparing electrochemical disinfection with chlorination for inactivation of bacterial spores in drinking water**  
L. Mezule, M. Reimanis, V. Krumplevska, J.Ozolins and T. Juhna  
Latvia

**Auditorium B      Session 7B2. Applied research in disinfection and inactivation technologies**

*Chairman: Regina Sommer*

- 11:45 – 12:15      **Last updates regarding our novel approaches to the treatment and disinfection of wastewaters from cholera treatment centres**  
Emanuele Sozzi, Jean-Francois Fesselet and Huw Taylor  
UK
- 12:15 – 12:45      **Fresh water preservation by safe and sustainable use of seawater or brackish water as secondary quality water in coastal urban areas**  
K. Roest, Tessa P.H. van den Brand, Damir Brdjanovic, Guang H. Chen and Mark C.M. van Loosdrecht  
Netherlands
- 12:45 – 13:15      **Collection system and molecular detection of Rotavirus in water samples**  
José Alfredo Soto-Alonso, Francisco Javier Zavala-Díaz de la Serna, Gilberto Erosa-de la Vega, Guadalupe Virginia Nevarez-Moorillon and Rocío Infante-Ramírez.  
Mexico

## Auditorium A

|               |   |
|---------------|---|
| 13:30 - 14:30 | Closing Ceremony                              |
| 14:30 - 15:30 | Lunch   |
| 16:00         | Transport to Radisson Hotel and Metro Copilco |

## *Thursday 29th November*

|               |  |       |
|---------------|--|-------|
|               | Visits pick-up and drop-off from Radisson Hotel  |       |
| 06:30 - 17:00 | <b>Technical tour - Tula Valley (or Mezquital Valley)</b><br>Including the nearly completed Atotonilco wastewater treatment plant the Endho dam and the Tula river | Bus 1 |
| 06:30 - 17:00 | <b>Technical tour - Cutzamala System</b><br>Including Los Berros wastewater treatment plant and the Bravo Valley dam   | Bus 2 |

## Poster presentations

### Disinfection of primary municipal wastewater effluents using continuous UV and ozone treatment

Yaneth Bustos, Mabel Vaca, Raymundo López, Erick Bandala, Luis Torres and Neftalí Rojas-Valencia (Mexico)  
Bustos P1. Mexico

### DesinFix® – Efficient disinfection for water reuse

R. Gramstad, H. Heinonen-Tanski and C. Hohenthal (Sweden)  
Gramstad P2. Sweden

### Compare the efficacy of five methods to disinfect different types of organisms in two different qualities of treated wastewater

A. Chávez, R. Gramstad, C. Maya, S. Lucario and B. Jiménez (Mexico).  
Chávez P3. Mexico

### Experiences in the use of bacteria, protozoa, and viruses as indicators of microbiological water quality

Espinosa-García A. C., A. Fonseca-Salazar, M. A. Silva-Magaña, N. Vázquez-Salvador, J. J. Noguez-Lugo, R. Val-Segura, M. Mazari-Hiriart and F. González-Villarreal (Mexico)  
Espinosa P4. Mexico

### Safe and sustainable water extraction from sewage

K. Roest\*, K. Lutchmiah\*, D.J.H. Harmsen\*, L.C. Rietveld\*\* and E.R. Cormelissen (Netherlands)  
Roest P5. Netherlands

### Verification of synergism in Chlorine-Ultraviolet radiation wastewater sequential disinfection using *Escherichia coli* and coliphages as indicator microorganisms.

N. Fischer, L. A. Daniel (Brazil)  
Fischer P6. Brazil

### Disinfection of an advanced primary effluent using peracetic acid and ultraviolet radiation for its reuse in public services

Flores Rodríguez; Julio; Martínez Gutiérrez Ma.Dolores; Vaca Mier Mabel; Rojas-Valencia Ma. Neftalí and López Callejas Raymundo (Mexico)  
Flores P7. Mexico

### Removal of pathogenic microorganisms in a low-cost system (biofilter-floating wetland) used for treatment of domestic wastewater

Oskar A. Palacios L., Guadalupe V. Nevarez-Moorillón, Marco A. Garzón Z., Paul Kay, Arodí Bernal-Martínez, Sergio A. Silva M. and Germán Cuevas-Rodríguez (Mexico)  
Palacios P8. Mexico

### Dry weather Flow Interception systems and centralised Sewage treatment in fourteen municipalities in Manila

Juan Zorrilla and Kar Weng Ng. (Australia)  
Zorrilla P9. Australia

#### **Pharmaceutical wastewater treatment with fungi technology**

M. Bernats and S. Larsson (Latvia)  
Bernats P10. Latvia

#### **Wastewater disinfection by electrolyses with conductive-diamond electrochemical – oxidation.**

A. Cano- Quiroza, Pablo Cañizares, Carlos Barrera- Diaza, Cristina Sáez, Ivonne Linares- Hernández, M.A. Rodrigo (Mexico).  
Cano P11. Mexico

#### **Microbiological indicators of contamination in sediments in the laguna de bustillos, cuauhtemoc, Chihuahua, Mexico.**

O.M. Enriquez-Armendáriz, O. A. Palacios-López, H. Rubio-Arias, M.A. González-Rangel, and G. V. Nevárez-Moorillón (Mexico)  
Enriquez P12. Mexico

#### **Water quality in the intermittent, piped water supply of Hubli-Dharwad, India**

E. Kumpel, K.L. Nelson (USA)  
Kumpel P13. USA

#### **Microbiological Evaluation of Recycled Wastewater Used for Irrigation of Green Areas in Chihuahua, Mexico**

O. A. Palacios-López, M. L. Ballinas-Casarrubias, M. S. Espino-Valdés and G. V. Nevarez-Moorillón (Mexico)  
Palacios P14. Mexico

#### **Critical success factors for the industrial reuse of effluent from process water treatment plants and municipal sewage treatment plants**

K. Roest\*, K. Lutchmiah\*, D.J.H. Harmsen\*, L.C. Rietveld\*\* and E.R. Cormelissen (Netherlands)  
Roest P15. Netherlands

#### **Implementing UV for reuse on East Coast. Lessons Learned: Wastewater UV Operations**

Jorge San Miguel and Wes Morin (Mexico)  
San Miguel P16. Mexico

#### **Disinfection of municipal wastewaters by coagulation-flocculation using natural gum and lime**

E. Zamudio, N. Rojas and L.G. Torres (Mexico)  
Zamudio P17. Mexico

#### **Behavior of disinfected secondary effluent on green area irrigation**

M. S. Espino-Valdés, A. Briones-Saucedo, M. Royo-Ochoa and A. Pinales-Munguía. (Mexico)  
Espino P18. Mexico

#### **Energy production from wastewater – Dynamic filtration of activated sludge**

K. Roest, B. Daamen, M. S. de Graaff, L. Hartog, M. H. Zandvoort, C. A. Uijterlinde, S. Dilven, J. B. van Lier and M. C. M. van Loosdrecht ((Netherlands)  
Roest P19. Netherlands