



WATER FORUM

FORUM ORGANIZERS:

Mark Shannon

University of Illinois, Urbana-Champaign

Eric Mintz

Clark Atlanta University

Maria M. Fidalgo de Cortalezzi

Buenos Aires Institute of Technology

Jose René Rangel Méndez

PIPcYT, División de Ciencias Ambientales

Materials Science for Next Generation of Water Purification

Water is central to the production of food, energy, and health, and it touches every aspect of the world's environment and economy. However, due to population growth, over pumping of aquifers, and now changes in water patterns due to climate change, water scarcity is becoming a serious concern all over the world. The need to treat and disinfect contaminated water is critical, with billions becoming sick and millions dying annually. For all water supply and treatment issues, new materials are required to reduce energy and chemical usage, increase performance, and decrease the cost of water for human use.

This forum is intended to help define the major materials issues facing emerging water supply, treatment, and purification practices in both developed and developing regions of the world, but with an emphasis on Mexico. Topics covered will include:

- Materials needs for creating new water supplies
- Water-material interactions, including cells, viruses, and heavy metals
- Catalysts and photoactive materials for disinfection
- Materials for water purification and multifunctional filters
- Materials for rain-water harvesting, including active biological materials
- Water transport through materials at low pressure with minimum energy
- Residual treatment to reduce waste from desalination and reuse

Each of the two panel sessions will feature some opening remarks followed by a question-and-answer period. In addition, a number of associated poster presentations will be included in the Monday evening poster session.



MONDAY, AUGUST 17
ROOM TULUM "E"
(JW MARRIOT)

MORNING SESSION

9:00-10:30 WATER POLLUTION PANEL

Moderator: René Rangel-Méndez
Instituto Potosino de Investigación Científica y Tecnológica

PANELISTS

Leticia M. Torres Guerra

Universidad Autónoma de Nuevo León

Roberto Leyva-Ramos

Universidad Autónoma de San Luis Potosí

Kevin McGovern

The Water Initiative

Timothy J. Strathmann

University of Illinois

Lebone Moeti

Georgia Department of Natural Resources

11:00-11:30 COFFEE BREAK

11:30-12:30 PLENARY 2

12:30-14:00 WATER SAFETY/SCARCITY PANEL

Moderator: Eric Mintz
Clark Atlanta University

PANELISTS:

Benito Mariñas

University of Illinois

Rich Sustich

Board of Directors, Clean Water America Alliance
Emeritus member National Advisory Council for Environmental
Policy and Technology

Sofía E. Garrido Hoyos

Instituto Mexicano de Tecnología del Agua

Kofi Bota

Clark Atlanta University

Mark A. Shannon

University of Illinois
Director *WaterCAMPWS*

14:00-16:00 LUNCH

16:00-18:30 AFTERNOON SESSION

18:30-20:30 POSTER SESSION & COFFEE BREAK

WF-P1

CHITOSAN-XANTHAN GELS FOR REMOVED IONICS METALS FROM WATER

R. Antonio-Cruz^{1*}, C. Cruz-Maldonado¹, A.M. Mendoza-Martínez¹, R.E. Zavala-Arce², B. García-Gaitán²

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WF-P2

MODELING OF PB⁺² SORPTION FROM WATER ONTO ACID-PRETREATED BONE CHAR USING THE SHRINKING CORE MODEL AND GENETIC ALGORITHMS

D.I. Mendoza-Castillo¹, I.A. Aguayo-Villarreal², A. Bonilla-Petriciolet², J. Jauregui-Rincon¹, L.A. Ramírez-Llamas³ and J.M. Martínez-Rosales³

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WF-P3

ADSORPTION OF FERULIC ACID IN A FIXED BED OF AMBERLITE XAD-16

N.E. Dávila Guzmán^a, F.J. Cerino Córdova^a, J.A. Loredó Medrano^a, M.N. Sánchez-González^b, J. R. Rangel Méndez^c

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WF-P4

PRELIMINARY ANALYSIS OF AGRO INDUSTRIAL WASTE FOR THE PRODUCTION OF CARBON ACTIVATED

Frausto González Juan José, Soto Regalado Eduardo, Cerino Córdova Felipe de Jesús, Ruiz Valdés Juan Jacobo.



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WF-P5

SENSORS FOR STUDY OF REACTIVE OXYGEN SPECIES ASSOCIATED WITH TION PHOTOOXIDATION CATALYSTS

Rebekah K. Wilson, Edward Chainani, and Alexander Scheeline
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WF-P6

SOLAR RADIATION AS ENERGY SOURCE FOR CLEANING WATER USED DURING BIODIESEL PURIFICATION

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WF-P7

DETERMINACIÓN DE PLOMO POR ESPECTROSCOPIA DE ABSORCIÓN ATÓMICA EN AGUAS DE POZOS EN 3 COMUNIDADES CERCANAS AL ACTIVO 5 PRESIDENTES EN CÁRDENAS, TABASCO

M. C. Hernández H¹, S. de la Cruz Madrigal¹, M. J. García Marín. ¹, M. A. Lunagomez Rocha. ¹ and L.L. Díaz Flores¹
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WF-P8

ADSORPTION OF PHENOLIC COMPOUNDS ONTO DIFFERENT TYPES OF CARBON NANOTUBES: EFFECT OF NITROGEN ONTO ADSORPTION CAPACITY

P.E. Díaz-Flores¹ and J. Rene Rangel-Mendez^{2*}
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WF-P9

THERMODYNAMIC STUDY OF Cu, Ni AND Pb SPECIES IN AQUEOUS MEDIA

Eunice Espinoza, Ramiro Escudero, Francisco J. Tavera
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WF-P10

SEDIMENTATION OF Cu, Ni AND Pb SPECIES IN LIQUID MEDIA

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WF-P11

QUANTIFYING BY ETHERAL EXTRACT OF OIL PHASE ON EMULSION

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WF-P12

NATIVE PLANTS FROM SEMIARID AREA WITH HEAVY METALS ABSORPTION CAPABILITY FROM POLLUTED WATER

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WF-P13

INACTIVATION KINETICS OF ADENOVIRUS BY FREE CHLORINE, MONOCHLORAMINE, UV LIGHT, AND SOLAR DISINFECTION

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WF-P14

DRINKING WATER DISINFECTION IN DEVELOPING REGIONS

Theresa Vonder Haar^{1,3}, Aimee Gall^{1,3}, Martin A. Page^{1,3}, Joanna L. Shisler^{2,3}, Benito J. Mariñas^{1,3}
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WF-P15

TREATMENT OF ARSENIC CONTAMINATED UNDERGROUND WATER BY ELECTROCOAGULATION PROCESS EMPLOYING A BIPOLAR CELL CONFIGURATION WITH CONTINUOUS FLOW

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WF-P16

CASE STUDY: WATER RECYCLING IN THE MUNICIPALITY OF SAN FELIPE DEL PROGRESO, STATE OF MEXICO (2009-2030)

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WF-P17

TREATMENT OF ENDOCRINE-DISRUPTING COMPOUNDS AND EMERGING PATHOGENS WITH POTASSIUM FERRATE

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WF-P18

METALS ANALYSIS IN FRESH FOOD WHICH WERE IRRIGATED WITH WASTEWATER; USING ATOMIC ABSORPTION SPECTROSCOPY

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WF-P19

REMOVAL OF RADIONUCLIDES AND TOXIC METALS FROM WATER USING NANOSIZE PHOSPHATE MATERIALS

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WF-P20

EFFICACY OF A VISIBLE LIGHT-ACTIVATED PHOTOCATALYST FOR THE CONTROL OF VIRUSES IN DRINKING WATER

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WF-P21

PHOTOCATALYTIC INACTIVATION OF MICROORGANISMS BY TiO₂ and TiO₂/Al₂O₃ COMPOSITE PARTICLES

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WF-P22

VISIBLE LIGHT-MEDIATED TiO₂/Al₂O₃ COMPOSITES: SYNTHESIS AND PHOTOCATALYTIC DISINFECTION UNDER VISIBLE AND UV LIGHT

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WF-P23

DEVELOPMENT OF Cu IMPREGNATED TiO₂/Al₂O₃ PHOTOCATALYSTS FOR THE DISINFECTION OF WATER

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WF-P24

THE EFFECT OF pH, INORGANIC IONS AND WAVE LENGTH ON PHOTOCATALYTIC ANTIBACTERIAL ACTIVITY OF TiO₂

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WF-P25

ARSENIC REMOVAL BY ZEOLITE FROM MEXICAN FLY ASH

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WF-P26

PHOTOCATALYSIS HETEROGENEOUS WITH TiO₂ FILMS FOR THE TREATMENT OF WATER CONTAMINATED WITH AZO-DYE AND TOXIC EFFECT ON *Lactuca sativa*

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WF-P27

ARSENIC III AND V REMOVAL FROM WATER USING CALCIUM AND BARIUM ALUMINATES

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WF-P28

SOLAR DISINFECTION OF VIRUSES IN THE PRESENCE OF NATURAL ORGANIC MATTER

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WF-P29

CHROMIUM CONTAMINATION: LECHERIA NEIGHBORHOOD, TULTITLAN, MÉXICO

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WF-P30

REMOVAL OF HEAVY METALS IN SLUDGE FROM A TREATMENT PLANT, WASTEWATER, USING THE TECHNIQUE OF VERMICOMPOST

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WF-P31

INACTIVATION OF COXSACKIEVIRUS WITH CHLORINE, OZONE, SILVER(I), AND UV/VISIBLE LIGHT

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