

PURE AND APPLIED CHEMISTRY

IUPAC PRESIDENT *Mark Cesa* (USA)

VICE PRESIDENT *Natalia Tarasova* (Russia)

PAST PRESIDENT *Kazuyuki Tatsumi* (Japan)

ACTING SECRETARY GENERAL *Colin Humphris* (UK)

TREASURER *John Corish* (Ireland)

COMMITTEE ON PUBLICATIONS AND CHEMINFORMATICS DATA STANDARDS (CPCDS)

Bonnie Lawlor (USA, chair); *Robert J. Lancashire* (Jamaica, secretary); *Hugh Burrows* (Portugal; ex officio); *Jeremy Frey* (UK); *Kazuhiro Hayashi* (Japan); *Lene Hviid* (Netherlands); *Wolfram Koch* (Germany); *James Liu* (USA); *Bono Lučić* (Croatia); *Miloslav Nic* (Czech Republic)

EDITORIAL ADVISORY BOARD (2014)

Colin Humphris (UK, IUPAC Acting Secretary General, Acting Chair)

David StC Black (Australia)

Bryan R. Henry (Canada)

Jung-Il Jin (Korea)

Nicole Moreau (France)

Leiv Sydnes (Norway)

Kazuyuki Tatsumi (Japan)

IUPAC DIVISION REPRESENTATIVES

Roberto Marquardt (France), Physical and Biophysical Chemistry

Jan Reedijk (Netherlands), Inorganic Chemistry

Krishna N. Ganesh (India), Organic and Biomolecular Chemistry

Mitsuo Sawamoto (Japan), Polymer

Nelson Torto (South Africa), Analytical Chemistry

Laura L. McConnell (USA), Chemistry and the Environment

Thomas J. Perun (USA), Chemistry and Human Health

Alan T. Hutton (South Africa), Chemical Nomenclature and Structure Representation

EX OFFICIO MEMBERS

Bonnie Lawlor (USA), Committee on Publications and Cheminformatics Data Standards, chair

Ron D. Weir (Canada), Interdivisional Committee on Terminology, Nomenclature and Symbols, chair

Hugh D. Burrows (Portugal), PAC Scientific Editor

ABSTRACTED/INDEXED IN CABI: CAB Abstracts; Global Health • Chemical Abstracts Service (CAS): SciFinder • Celdes • CNPIEC • EBSCO Discovery Service • EBSCOhost (relevant databases) • Gale/Cengage • Google Scholar • J-Gate • Naviga (Softweco) • Primo Central (ExLibris) • ProQuest (relevant databases) • Summon (Serials Solutions/ProQuest) • Swets • TDOne (TDNet) • Thomson Reuters: Current Contents/Physical, Chemical and Earth Sciences; Journal Citation Reports/Science Edition; Science Citation Index; Science Citation Index Expanded • WorldCat (OCLC)

ISSN 0033-4545 · e-ISSN 1365-3075

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at www.degruyter.com/pac

SCIENTIFIC EDITOR, CONFERENCE AND SPECIAL TOPIC PAPERS Prof. Hugh D. Burrows, Department of Chemistry, University of Coimbra, Coimbra, Portugal, Email: burrows@ci.uc.pt

EDITORS, IUPAC RECOMMENDATIONS AND TECHNICAL REPORTS Prof. Dr. Ron D. Weir, Department of Chemistry and Chemical Engineering, Royal Military College of Canada, Kingston, Ontario, Canada, Email: weir-r@rmc.ca

Prof. Dr. Jürgen Stohner, Department of Life Sciences and Facility Management, Institute of Chemistry and Biological Chemistry, Zurich University of Applied Sciences, Wädenswil, Switzerland, Email: juergen.stohner@zhaw.ch

IUPAC SECRETARIAT PO Box 13757, Research Triangle Park, NC 27709-3757, USA; Tel.: +1 919-485-8700;

Fax: +1 919-485-8706, Email: secretariat@iupac.org; Web site: www.iupac.org

JOURNAL MANAGER Allie Struzik, De Gruyter, 121 High Street, Boston, MA 02110, USA, Tel.: +1 857-284-7073, Fax: +1 857-284-7358, Email: allie.struzik@degruyter.com

RESPONSIBLE FOR ADVERTISEMENTS Panagiota Herbrand, De Gruyter, Rosenheimer Straße 143, 81671 München, Germany, Tel.: +49 (0)89 769 02-394, Fax: +49 (0)89 769 02-350, Email: panagiota.herbrand@degruyter.com

© 2014 Walter de Gruyter GmbH, Berlin/Boston

TYPESETTING Compuscript Ltd., Shannon, Ireland

PRINTING Franz X. Stückle Druck und Verlag e.K., Ettenheim



Printed in Germany

Contents

Congress-44 Environmental Chemistry

Preface

Hemda Garelick, Bradley Miller and Willie Peijnenburg
44th IUPAC Congress: Environmental Chemistry — 1083

Conference papers

Petr S. Fedotov

Estimating the bioavailability of trace metals/metalloids and persistent organic substances in terrestrial environments: challenges and need for multidisciplinary approaches — 1085

Stefka Tepavitcharova, Diana Rabadjieva, Tihomir Todorov, Antonina Kovacheva, Manos Dassenakis and Vasiliki Paraskevopoulou

Chemical speciation in fresh, saline and hyper-saline waters — 1097

Glen D. Lawrence, Kamalkumar S. Patel and Aviva Nusbaum

Uranium toxicity and chelation therapy — 1105

Slavka Stanković, Bojan Tanaskovski, Božidarka Zlatić, Milica Arsenović and Lato Pezo

Analysis of trace elements in surface sediments, mussels, seagrass and seawater along the southeastern Adriatic coast – a chemometric approach — 1111

Setare Tahmasebi Nick, Ali Bolandi, Tova A. Samuels and Sherine O. Obare

Advances in understanding the transformation of engineered nanoparticles in the environment — 1129

Leonid M. Kustov, Souhail R. Al-Abed, Jurate Virkutyte, Olga A. Kirichenko, Elena V. Shuvalova, Gennady I. Kapustin, Igor V. Mishin, Vera D. Nissenbaum, Olga P. Tkachenko and Elena D. Finashina

Novel Fe-Pd/SiO₂ catalytic materials for degradation of chlorinated organic compounds in water — 1141

Rick Arneil D. Arancon, Yu Tao Zhang and Rafael Luque

Nanotechnology management for a safer work environment — 1159

Jinfeng Li, Yuanhang Zhang, Glenda Herjavić, Paul H. Wine and Leo Klasinc

Bibliometric analysis of research on secondary organic aerosols: Update — 1169

Aleeza Farrukh, Attia Akram, Abdul Ghaffar, Eylül Tuncel, Zehra Oluz, Hatice Duran, Habib ur Rehman and Basit Yameen

Surface-functionalized silica gel adsorbents for efficient remediation of cationic dyes — 1177

Olga Chalkiadaki, Manos Dassenakis, Vasiliki Paraskevopoulou and Nikos Lydakakis-Simantiris

Experimental study of cadmium bioaccumulation in three Mediterranean marine bivalve species: correlation with selected biomarkers — 1189

Yehuda Shevah

Water scarcity, water reuse, and environmental safety — 1205

ICHC-24

Preface

Ang Li

The 24th International Society of Heterocyclic Chemistry Congress (ICHC-24) — 1215

Conference papers

Jie Yu, Ya Zhou, Dian-Feng Chen and Liu-Zhu Gong

Organocatalytic asymmetric synthesis of chiral nitrogenous heterocycles and natural products — 1217

Ai-E Wang and Pei-Qiang Huang

Efficient asymmetric syntheses of alkaloids and medicinally relevant molecules based on heterocyclic chiral building blocks — 1227

Xiaotong Jia, Yu Yang, Yufang Xu and Xuhong Qian

Naphthalimides for labeling and sensing applications — 1237

Mikiko Sodeoka and Hiromichi Egami

Metal-catalyzed synthesis of heterocycles bearing a trifluoromethyl group — 1247