

Preface

This special issue of Defect and Diffusion Forum contains selected peer-reviewed papers presented at the tenth International Conference on Diffusion in Solids and Liquids (DSL-2014) held at the Tapis Rouge Paris, France during the period 23rd-27th June, 2014.

The goal of the conference was to provide a unique opportunity to exchange information, to present the latest results as well as to review the relevant issues on contemporary diffusion research. Young scientists were especially encouraged to attend the conference and to establish international networks with well-known scientists.

A number of topics were highlighted in the scope of special sessions and some of the presented papers are collected in this volume: *FLOW SYSTEMS, DESIGN AND OPTIMIZATION* (SS1) (by A.F. Miguel, L. Rocha), *DIFFUSION PROCESSES AND REACTIONS IN ENGINEERING ALLOYS* (SS2) (by H. Mehrer, G.E. Murch, I. Belova), *GRAIN BOUNDARIES AND INTERFACES: STRUCTURE, THERMODYNAMICS AND DIFFUSION PROPERTIES* (SS3) (by V.V. Popov, B. Straumal), *ALTERNATIVE ENERGIES* (SS4) (by G. Ferreira, G. Alexander), *CARBON AND OXIDE NANOSTRUCTURES* (SS5) (by N. Yahya, G. Kozlowski, K. Koziol), *DRYING AND WETTING OF SOLIDS AND PARTICULATE MATERIALS* (SS6) (by A.G. Barbosa de Lima, J.M.P.Q. Delgado), *HEAT AND MASS TRANSFER IN POROUS MEDIA* (SS7) (by J.M.P.Q. Delgado), *NANO/BIO MATERIALS SYNTHESIS, CHARACTERIZATION, MODELING AND APPLICATIONS* (SS9) (by A. Shokuhfar, C. Politis), *HYDROGEN-RELATED KINETICS IN MATERIALS* (SS10) (by M. Wilde, J. Cizek), *MICROSCOPY, MICROANALYSIS AND THEIR APPLICATION ON MATERIALS* (SS11) (by K. Shin), *NANOTECHNOLOGY IN OIL AND GAS* (SS12) (by H. Soleimani, G. Kozlowski), *SURFACE MODIFICATIONS* (SS13) (by C.R. Grandini, A.P.A.R. Alves Claor, L.A. Rocha), and *DIFFUSION AND ENVIRONMENTAL MANAGEMENT* (SS14) (by P. Sengupta).

More than 298 scientists and researchers coming from more than 32 countries attended the conference. The large number of presented papers emphasises the considerable academic and industrial interest in the conference theme. The editors wish to thank the authors and delegates for their participation and cooperation, which made this tenth conference especially successful.

Finally, we wish to express our warm thanks and appreciation to our colleagues and associates for their sustained assistance, help and enthusiasm during the preparation of the conference.

The eleventh conference, DSL-2015, will be held in Munich, German, from 22-26 June, 2015 (<http://www.dsl-conference.com/>).

April 2015

Andreas Öchsner
Graeme E. Murch
Ali Shokuhfar
João M.P.Q. Delgado

ORGANISING COMMITTEE:

A. Öchsner (Chair)

Griffith University, Australia

G.E. Murch (Co-Chair)

The University of Newcastle, Australia

A. Shokuhfar (Co-Chair)

K.N. Toosi University of Technology, Iran

J.M.P.Q. Delgado (Co-Chair)

Universidade do Porto, Portugal

HONORARY CHAIRMAN:

Mysore Dayananda

USA

DSL-2014 Secretariat and Management:

ICC - INTERNATIONAL CONFERENCES AND COURSES LIMITED

LOCAL ADVISOR:

P. Soukiassian

Universite de Paris-Sud/Orsay, FRANCE

SCIENTIFIC COMMITTEE:

V. Popov

Institute of Metal Physics, Russian
Academy of Sciences, RUSSIA

S. Nardini

Seconda Universita' degli Studi di Napoli, ITALY

M. Zinigrad

Ariel University Center of Samaria, ISRAEL

H.R. Rezaie

Iran University of Science & Technology, IRAN

I. Belova

The University of Newcastle, AUSTRALIA

K. Shin

Changwon National University, KOREA

B.B. Straumal

Institute of Solid State Physics, RUSSIA

A.N. Dmitriev

Institute of Metallurgy of the Ural Branch of Russian,
Academy of Sciences, RUSSIA

H. Mehrer

Universität Münster, GERMANY

H. Cimenoglu

Istanbul Technical University, TURKEY

K. Sefiane

The University of Edinburgh, UK

M.J.S. De Lemos

Instituto Tecnológico de Aeronautica-ITA, BRAZIL

O.S. Es-Said

Loyola Marymount University, USA

A. Miguel

Universidade de Évora, PORTUGAL

N. Yahya

Universiti Teknologi PETRONAS, MALAYSIA

A. Fishman*

Ural Department of Russian Academy of Sciences, RUSSIA

O. Manca

Seconda Universita' degli Studi di Napoli Real Casa dell'Annunziata, ITALY

R. Kozubski

Jagellonian University, POLAND

S. Veprek

Technical University Munich, GERMANY

M.A.Rodriguez Perez

University of Valladolid, SPAIN

D. Freude

Universität Leipzig, GERMANY

I. Malico

Universidade de Évora, PORTUGAL

J. Kärger

Leipzig University, GERMANY

M. Wilde

The University of Tokyo, JAPAN

R. Bennacer

Ecole Normale Supérieure Cachan, FRANCE

G.P. Celata

ENEA - Division of Advanced Technologies for Energy and Industry, ITALY

N. Bianco

Universita' degli Studi di Napoli Federico II, ITALY

M. Alves

Universidade do Porto, PORTUGAL

S. Seetharaman

Royal Institute of Technology, SWEDEN

H. Combeau

Ecole des Mines de Nancy, FRANCE

A.A. Kodentsov

Eindhoven University Technology, THE NETHERLANDS

O. Florencio
UFSCAR, BRAZIL

R.V. Ramnath
Massachusetts Institute of Technology-MIT, USA

E. Solórzano
University of Valladolid, SPAIN

M. Danielewski
AGH University of Science and Technology, POLAND

H. Nakajima
The Wakasa Wan Energy Research Center, JAPAN

H. Fujikawa
Air Water Incorporated, JAPAN

A.A. Senichault
Laboratoire TREFLE, FRANCE

G. Kozlowski
Wright State University, USA

C.R. Grandini
UNESP/Bauru, BRAZIL

L.S. Shvindlerman
University of Aachen, GERMANY

P. Heitjans
Leibniz University Hannover, GERMANY

H. Soleimani
Universiti Teknologi PETRONAS, MALAYSIA

L.A. Rocha
UNESP, BRAZIL

A.C. Karaoglanli
Bartın University, TURKEY

INVITED PLENARY SPEAKER:

Mysore Dayananda (*Opening Lecture*)