

REPORT ON SYMPOSIUM OF COST ACTION MP1106

Symposium details:

Symposium name: **Smart and Green Interfaces: Fundamentals and Diagnostics (SGI-FunD 2015)**

COST action: **MP1106**

Date: **29 – 31 October 2015**

Place: **Sofia, Bulgaria**

Host institution: **Department of Interfaces and Colloids, IPC, Bulgarian Academy of Sciences**

Local organizer: **Elena Mileva**

Scientific program

The three-day SGI-FunD 2015 Symposium consisted of 12 keynote (30 min) and 47 oral (20 min) presentations, running in three morning sessions (29 – 31 October 2015) and two afternoon sessions on Thursday and Friday (October 29-30, 2015). There have also been two poster sessions on Thursday and Friday (October 29-30, 2015) with 38 poster presentations. The topics of the presentations were:

- Foams and emulsions
- Smart fluid interfaces
- Wetting phenomena
- Surface forces and thin liquid films
- Biosurfactants and medical applications

The Symposium Schedule and Poster list is presented in the Appendix. SGI-FunD 2015 included a Cluster meeting "Nanomaterials and Nanotechnologies", organized by Prof. Dr. Mustafa Ersoz on October 29, 2015 (17:00 - 19:00) with a round table discussion on the participation in future Horizon 2020 calls related to Smart and Green Interfaces Applications (in particular NMBP – 2016-2017).

SGI-FunD 2015 Symposium organization

The Symposium was organized in Best Western Hotel EXPO in Sofia. There have been two social events: Welcome Reception on Wednesday, October 28, 2015 (18:30-20:00) and a Gala Dinner on Friday, October 30, 2015 (19:30-22:30). SGI-FunD 2015 was attended by 97 participants from 23 European countries. The support from the action Chair (Thodoris Karapantsios) and Grant Manager (John Lioumbas) was excellent.

Thursday, October 29, 2015

Oral Presentations / Keynote Lectures			
09:00	KN1	<u>Björn Lindman</u> , Tommy Nylander, Bruno Medronho, Filipe Antunes, Carmen Morán, Diana Costa, Maria Miguel and Lennart Piculell	Amphiphilic polymer-surfactant association—bulk vs. interfaces
09:30	KN2	Frank Schellenberger, Noemí Encinas, Periklis Papadopoulos, Jing Xie, Doris Vollmer, <u>Hans-Jürgen Butt</u>	Drops on superhydrophobic and lubricant-infused surfaces
10:00	KN3	<u>Victor Starov</u> , Igor Kuchin	Hysteresis of contact angle on smooth homogeneous solid surfaces and disjoining pressure
11:00	KN4	Marcel Rey, Miguel Angel Fernandez-Rodriguez, Mathias Steinacher, Karen Geisel, Walter Richtering, Todd M. Squires, <u>Lucio Isa</u>	Phase diagram of soft core-shell particles at fluid interfaces
11:30	KN5	Adrian Carl, Dmitrij Stehl, <u>Regine Von Klitzing</u>	Foams and emulsions stabilized by nanoparticles of varying hydrophobicities

Section: Foams and emulsions			
Oral Presentations			
13:30	O1:1	Brian Vincent	The encapsulation of liquid droplets with silica shells
13:50	O1:2	<u>Per Stenius</u> , Tekla Tammelin, Marie Gestranus	Stabilization of emulsions and foams with cellulose nanomater
14:10	O1:3	<u>Slavka Tcholakova</u> , Nikolai Denkov	Physico-chemical control of bubble Ostwald ripening on foams
14:30	O1:4	Berrin İközler, Şerife Ş. Helvac, <u>Sümer Peker</u>	Interfacial properties of rhamnolipid surfactants
14:50	O1:5	<u>Krzysztof Szczepanowicz</u> , Monika Bzowska, Alicja Karabas, Tomasz Kruk, Joanna Bereta, Piotr Warszyński	Pegylated polyelectrolyte nanocapsules as anticancer drug vehicles for passive targeting
15:10	O1:6	<u>Stoyl Stoylov</u>	Electro-optics of spherical isotropic particles: solid, soft, drops and bubbles

Section: Wetting phenomena			
Oral Presentations			
13:30	O3:1	<u>Svetoslav Anachkov</u> , Ivan Lesov, Lucio Isa, Peter Kralchevsky, Nikolai Denkov	Particle detachment from fluid-fluid interfaces: Data interpretation and analytical modelling
13:50	O3:2	A. Goncalves Dos Santos, Francisco Javier Montes-Ruiz Cabello, Fernando Vereda-Moratilla, <u>Miguel Angel Cabrerizo-Vilchez</u> , Miguel Angel Rodriguez-Valverde	Ranking of superhydrophobic surfaces
14:10	O3:3	<u>Zuzana Brabcová</u> , Glen McHale, Gary Wells, Carl Brown, Michael Newton	Dielectrowetting – spreading of droplets using the dielectrophoresis

14:30	03:4	Agota Simon, Alexandru Stoicu, Ionut Relu Andrei, Tatiana Alexandru, Angela Staicu, Adriana Smarandache, <u>Mihail Pascu</u>	Wetting properties of medicines solutions exposed to laser beams and treated in hypergravity conditions
14:50	03:5	Andrey Milchev	Effects of polymers stiffness on surface tension and pressure in confinement
15:10	03:6	Stoyan Smoukov	Geometrical basis for symmetry breaking and multi-functionality

Section: Surface forces and thin liquid films

Oral Presentations

16:00	04:1	<u>Jan Zawala</u> , Dominik Kosior, Tadeusz Dabros, Kazimierz Malysa	Modeling of influence of surface mobility on bubble rising velocity and kinetics of three-phase contact formation
16:20	04:2	<u>Georgi Gochev</u> , Dimo Platikanov, Reinhard Miller, Dotchi Exerowa	Chronicles of foam films

Section: Biosurfactants and medical applications

Oral Presentations

16:40	05:1	Libero Liggieri, Alessandro Benedetti, Michele Ferrari, Reinhard Miller, Francesca Ravera, <u>Eva Santini</u> , Vamseekrishna Ulaganathan	Effects of CTAB on the surface properties of sea water
17:00	05:2	Raina Georgieva, Claude Chachaty, Russina Hazarosova, Cedric Tessier, Philippe Nuss, Albena Momchilova, <u>Galya Staneva</u>	Docosaehaenoic acid promotes micron scale liquid-ordered domains. A comparison study of docosaehaenoic versus oleic acid containing phosphatidylcholine in raft-like mixtures
17:20	05:3	<u>Roumen Todorov</u> , Ivan Terziyski, Dotchi Exerowa	Advantages of the black film method on development of fully synthetic pulmonary surfactants
17:40	05:4	<u>Anna Gyurova</u> , Stefan Stoyanov, Elena Mileva	Influence of the concentration of bacterial lipopolysaccharides on their capturing in aqueous solutions by four-antennary oligoglycines

Section: Smart fluid interfaces

Oral Presentations

16:00	02:1	Jian H. Guan, <u>Gary G. Wells</u> , Ben Xu, David Wood, James Martin, Simone Stuart-Cole, Glen McHale	Evaporation of sessile droplets on slippery liquid-infused porous surfaces
16:20	02:2	Kamelia Kamburova, Neli Boshkova, Nikolai Boshkov, <u>Tsetska Radeva</u>	Design and characterization of core-shell nanocontainers impregnated with benzotriazole for active corrosion protection of low carbon steel in acidic conditions
16:40	02:3	Renaud Denoyel, Mickael Antoni, <u>Mathieu Nespoulous</u>	Microstructure formation in freezing nanofluid droplets

17:00-19:00	Cluster meeting "Nanomaterials and Nanotechnologies" Organizer: Mustafa Ersoz		
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Poster session I	
Section: Foams and emulsions	
Krastanka G. Marinova, Slavka S. Tcholakova, Nikolai D. Denkov	Antifoam action in dynamic conditions
Mihai Boni, Viorel Nastasa, Ionut Relu Andrei, Angela Staicu, Mihail-Lucian Pascu	Laser induced emission of dye emulsion droplets
Nenad Mucic, Georgi Gochev, Jooyoung Won, Vamseekrishna Ulaganathan, Heiko Fauser, Aliyar Javadi, Eugene V. Aksenenko, Jürgen Krägel, Reinhard Miller	Adsorption of equimolar aqueous SDS/DoTAB mixtures at solution/air and solution/oil interfaces
Nilay Celik, Shahab Alfkhani, Georgi Gochev, Aliyar Javadi, Reinhard Miller	Hexane vapor enhanced stability of SDS foam films and foams
Anastasia Pontryagina, Michael Pletnev, Reinhard Miller	Surface activity and foam properties of sodium lauroyl sarcosinate, mild anionic surfactant of natural origin
Saule B. Aidarova, Y. I. Montayev, P. M. Djumagaliyev, Zhanar B. Ospanova, Kuanyshbek B. Mussabekov	Oil products flames quelling with fluoroprotein foaming agents
S. Kirkova, Gergana Radulova, Theodor Gurkov, D. Krâsteva, P. Petrova, Petar Kralchevsky, Krassimir Danov, Simeon Stoyanov, Eddie Pelan	Rheology of solid/liquid dispersions, affected by an inner fluid through a capillary mechanism
Saule Aidarova, Zhanar Ospanova, Kuanyshbek Musabekov	Foam compositions based on surfactants and sodium carboxymethylcellulose

Poster session I	
Section: Smart fluid interfaces	
Elena Livia Simion, Gabriela Stîngă, Adriana Băran, Ludmila Aricov, Ioana Cătălina Gîfu, Dan Florin Anghel	Smart complexes between unlabeled and fluorescently labeled polymer and anionic surfactant
Marcel Krzan, Kazimierz Małysa	Influence of n-alkanol chain length on local and terminal velocities of rising bubbles
Elisavet Michailidi, Ramonna Kosheleva, Nikolaos Kokkinos, Georgios Bomis, Athanassios Mitropoulos	Surface tension of saline water containing nanobubbles
Deniz İzlen Çifçi , Süreyya Meriç	Evaluation of particle size dependency of Fe doped pumice composites to remove Cu and Zn metals in aqueous solutions
Sandra Rodríguez-Fabià, Kristofer Paso, Bjørn Kvamme, Johan Sjöblom	Capture of CO ₂ in liquid crystalline phases

Poster session I	
Section: Wetting phenomena	
Hristina Popova, Andrey Milchev	Effects of surfactant architecture and flexibility on the surface tension between two immiscible liquids
Ioana Cătălina Gîfu, Monica Elisabeta Maxim, Elena Livia Simion, Ludmila Aricov, Mihai Anastasescu, Cornel Munteanu, Mariuca Gartner, Alina Iovescu, Gabriela Stinga, Dan-Florin Anghel	Towards superhydrophobic architectures of hydrophobically modified polyacrylates (HMPA) and HMPA-surfactant complexes by layer-by-layer (LbL) deposition
Ivan Lesov, Svetoslav Anachkov, Michele Zanini, Nikolai Denkov, Lucio Isa	Wetting of solid particles by liquid interfaces
Khristo Khristov, Elena Mileva, Dimitrinka Arabadzhieva, Hristina Petkova, Nurses Laz, Rossen	Physicochemical characterization of biodegradable industrial degreasing agent EK 60

Siromahov	
Michele Ferrari, Francesca Cirisano, Libero Liggieri, Francesca Ravera, Eva Santini, Alessandro Benedetti	Biofouling and corrosion protection in sea environment by superhydrophobic coatings
Mojtaba Mirzaeian, Qaisar Abbas	Electrode/electrolyte wettability in lithium/air batteries

Friday, October 30, 2015

<i>Oral Presentations / Keynote Lectures</i>			
09:00	KN6	Zenaida Briceño, Wiebke Drenckhan, <u>Dominique Langevin</u>	Coalescence in draining foams made of very small bubbles
09:30	KN7	<u>Peter A. Kralchevsky</u> , Krassimir D. Danov, Rumyana D. Stanimirova, Krastanka G. Marinova, Simeon D. Stoyanov, Theodoros B. Blijdenstein, Andrew Cox, Eddie G. Pelan	Adhesion of bubbles and drops to solid surfaces, and anisotropic surface tensions studied by capillary meniscus dynamometry
10:00	KN8	Polycarpos Pissis	Interfacial effects in complex polymeric systems studied by thermal and dielectric techniques
11:00	KN9	Krzysztof Szczepanowicz, Grażyna Para, Lilianna Szyk-Warszynska, Kazimiera A. Wilk, <u>Piotr Warszynski</u>	Role of surfactant/polymer complex in the formation of nanocapsules
11:30	KN10	Ludmila Boinovich	Surface forces induced by the solvent molecular structure

Section: Smart fluid interfaces			
<i>Oral Presentations</i>			
13:30	02:4	Johannes (Hans) Lyklema	Entropy studies for obtaining independent information on thin layers
13:50	02:5	Simeon D. Stoyanov	Saponins – natural surfactants with unique properties and functionality
14:10	02:6	<u>Theodor Gurkov</u> , Dora Dimitrova	Adsorption dynamics and equation of state of surfactant layers, quantified from the initial stages in the interfacial tension change
14:30	02:7	Emre Aslan, Imren Hatay Patir, <u>Mustafa Ersoz</u>	The catalytic hydrogen evolution at liquid/liquid interfaces
14:50	02:8	<u>Hristina Petkova</u> , Dimitrinka Arabadzhieva, Alina Iovescu, Elena Mileva, Khristo Khristov, Gabriela Stinga, Cristina-Florentina Mihailescu, Dan Florin Anghel, Roumen Todorov, Ludmila Aricov	Surface properties of aqueous solutions of hydrophobically modified polyacrylic acids
15:10	02:9	<u>Miguel Angel Fernandez-Rodriguez</u> , Limei Chen, Christopher P. Deming, Miguel Angel Rodriguez-Valverde, Shaowei Chen, Miguel Angel Cabrerizo-Vilchez, Roque Hidalgo-Alvarez	Enhanced interfacial activity of Janus gold nanoparticles with shorter hydrophilic capping ligand
15:30	02:10	<u>M. Radoičić</u> , M. Mitrić, M. Čomor, G. Ćirić-Marjanović, S.P. Ahrenkiel, Z. Šaponjić	Carbonized PANI/TiO ₂ nanocomposites: synthesis, characterization and photocatalytic efficiency

Section: Surface forces and thin liquid films			
<i>Oral Presentations</i>			
13:30	04:3	<u>Vladimir Sobolev</u> , Stanislav Itskov, Natalia Esipova	Measurement of wetting film surface potential
13:50	04:4	Monika Witala, Roberto Nervo, Oleg Konovalov, <u>Kim Nygård</u>	Microscopic segregation of hydrophilic ions in critical binary aqueous solvents
14:10	04:5	Jan Zawala, Dominik Kosior, <u>Kazimierz Malysa</u>	On importance of thin liquid films in kinetics of the bubble bouncing and collision with interfaces
14:30	04:6	<u>Ronald Terrazas Mallea</u> , Pierre Lambert, Aude Bolopion, Michael Gauthier	Towards controlled particle manipulation using thermocapillary convective flow
14:50	04:7	Francisco L. Tabares	Thin liquid metal films for fusion devices
15:10	04:8	Vesselin Tonchev	Transitions between regimes of aggregation kinetics in 2D: analytical and numerical results
15:30	04:9	<u>Tatyana Peshkova</u> , Javor Novev, Ivan Minkov, Nikolay Grozev, Stoyan Karakashev, Radomir Slavchov	Ion adsorption at water air and water oil interfaces

Section: Biosurfactants and medical applications			
<i>Oral Presentations</i>			
16:20	05:5	<u>Nadia Antonova</u> , Ivan Ivanov, Violeta Mitova, Agnieszka Kowalczyk, Pavel Riha	Rheological and electrical properties of polymeric nanoparticle solutions and their influence on RBC suspensions
16:40	05:6	<u>Stefan Stoyanov</u> , Dimitrinka Arabadzhieva, Kamelia Fileva, Elena Mileva	Interfacial layer properties and foam film drainage kinetics of aqueous solutions from two-antennary oligoglycines
17:00	05:7	<u>Kamelia Kamburova</u> , Karina Mitarova, Tsetska Radeva	Polysaccharide-based nanocapsules for controlled release of indomethacin

Section: Foams and emulsions			
<i>Oral Presentations</i>			
16:20	01:7	Marce Krzan, <u>Ewelina Jarek</u> , Eva Santini, Hristina Petkova, Vamsee Ulaganatha, Marzi Lofti, Avi Javadi, Francesca Ravera, Roumen Todorov, Piotr Warszynski, Elena Mileva, Reinhard Miller, Dotchi Exerova, Libero Ligierri	Stable and biocompatible particle laden foams – the influence of interfacial properties of the mixed adsorption layer on foam film stability and elasticity
16:40	01:8	Francisco M. Goycoolea, <u>Viktoria Milkova</u>	Electrokinetic behavior of chitosan adsorbed onto o/w nanoemulsion droplets
17:00	01:9	<u>Mihai Boni</u> , Angela Staicu, Ionut Relu Andrei, Adriana Smarandache, Viorel Nastasa, Zoran Saponjic, Mihail-Lucian Pascu	Studies on the laser induced emission of microdroplets containing Rhodamine 6G solutions in waterdoped with TiO ₂ nanoparticles

Poster session II	
Section: Surface forces and thin liquid films	
Dilyana Ivanova, Jana Angarska, Emil Manev, Krasimir Tachev	Critical thickness of foam films stabilized by nonionic, ionic surfactants and their mixtures
Dimitrinka Arabadzhieva, Plamen Tchoukov, Stefan Stoyanov, Elena Mileva	Mix surfactants: interfacial layer properties investigation using Profile Analysis Tensiometer
Galina Zamfirova, Valentin Gaydarov, Fabio Faraguna, Elvira Vidović, Ante Jukić	Influence of carbon nanotubes compatibilisation on the mechanical properties of poly methacrylate nanocomposites
Hristina Petkova, Khristo Khristov, Dotchi Exerowa	Foam films from polyoxyalkylated diethylenetriamine polymeric surfactant solutions: Effect of temperature and pH on films lifetime
Jan Zawala, Anna Niecikowska, Agata Wiertel, Kazimierz Malysa	Influence of liquid surface tension and viscosity on rising bubble coalescence at resting and vibrating liquid/gas interfaces
Mihail T. Georgiev, Krastanka G. Marinova, Peter A. Kralchevsky	Impact of the aggregation of cationic polymers and zwitterionic surfactant on the adsorption on air/water and solid/water interfaces
Nikolay Panchev, Khristo Khristov, Jan Czarnecki	A new method for electro-microinterferometric studies of water-in-oil emulsion films: Development and application with natural and synthetic surfactants
Sandra Orvalho, Marek C. Ruzicka	Coalescence of bubbles in electrolyte solutions
Kamelia Kamburova, Tsetska Radeva, Stoyl Stoylov	Electrokinetic (Electro-optic) spectroscopy of the Stern layer
Tomasz R. Sosnowski	Particle displacement on DPPC monolayer at air-water interface
Hristina Popova, Alexander Kolevski, Georgi Georgiev, Isak Avramov, Vesselin Tonchev	Nucleation (and growth) in 2D: Time dependencies from cellular automata

Poster session II	
Section: Biosurfactants and medical applications	
Albena Jordanova, Asya Tsanova, Maya Bangyozova, Yordanka Yamakova, Rosen Petkov, Zdravko Lalchev	Axisymmetric Drop Shape Analysis – a new technique for assessment of clinical samples from patients with respiratory dysfunctions
Alina Iovescu, Gabriela Stîngă, Adriana Băran, Anca Ruxandra Cantemir-Leontieș, Monica Elisabeta Maxim and Dan Florin Anghel	Exploring the interaction of bovine serum albumin with biocompatible nonionic surfactants
Betül Taşdelen, Deniz İzlen Çiftçi, Süreyya Meriç	Preparation of N-isopropylacrylamide/itaconic acid/pumice highly swollen composite hydrogels for removal of nanoparticles
M. Carmen Morán, Guillem Ruano, M. Antònia Busquets, M. Pilar Vinardell	Gelatin-based nanoparticles for the efficient encapsulation and release of nucleic acids
Petr Stanovský	Surfactants in natural waters and their effect on gas-liquid mass transfer
Russina Hazarosova, Galya Staneva, Albena Momchilova, Kamen Koumanov, Diana Petkova	Interaction of resveratrol with model membranes
Sami Rtimi, Stefanos Giannakis, Cesar Pulgarin, John Kiwi	New insight on the bacterial inactivation by Co-sputtered TiO ₂ -Cu in aerobic and anaerobic media under low intensity actinic light

George R. Ivanov, Gergana Antova, Georgi Georgiev	New Effects in Langmuir monolayers from fluorescently labelled phospholipids. Possible use for water quality control with optional geodetic mapping and space data registration
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Saturday, October 31, 2015

Oral Presentations / Keynote Lectures			
09:00	KN11	A. Javadi, N. Mucic, E.V. Aksenenko, V.B. Fainerman, <u>R. Miller</u>	Co-adsorption of surfactants/proteins from aqueous solution and alkane from the vapor phase
09:30	KN12	Christo B. Tsvetanov	Polymer nanocarriers as drug delivery systems

Section: Biosurfactants and medical applications			
Oral Presentations			
10:00	05:8	<u>Günseli Özdemir</u> , Saadet Yapar	Adsorption and desorption behavior of sodium lauroylsarcosinate with cetyl-pyridinium and cetyltrimethyl ammonium modified organoclays
10:20	05:9	<u>Lidia Alexandrova</u> , Michail Nedyalkov, Dimo Platikanov	Wetting behavior of therapeutic pulmonary surfactants

Section: Foams and emulsions			
Oral Presentations			
11:00	01:10	Marina Rukhadze	Study of structural changes of water confined in the nonionic reverse micelles: Influence of pH of water droplets
11:20	01:11	A.Sezai Sarac	Conductive electrospun nanofibers
11:40	01:12	Radomir Slavchov, <u>Iglika Dimitrova</u> , Tzanko Ivanov	Quadrupolar terms in the Maxwell equations
12:00	01:13	<u>Anwesa Karmakar</u> , Magali Duvail, Jean-François Dufrêche and Thomas Zemb	Micelle model for liquid-liquid solvent extraction