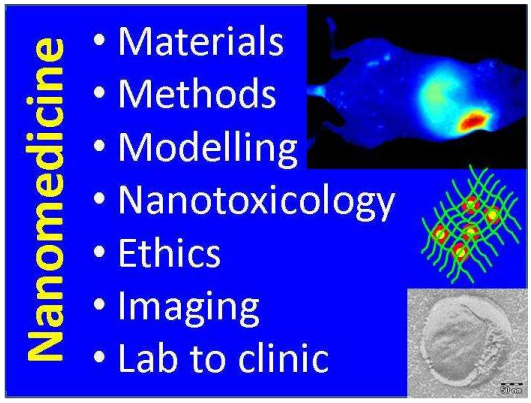
3rd European Science Foundation Summer School

Nanomedicine 2011

19-24 June 2011

LEUCOREA and Luther-Hotel, Lutherstadt Wittenberg, Germany



EUROPEAN SCIENCE FOUNDATION
SETTING SCIENCE AGENDAS FOR EUROPE

With support from

MARTIN-LUTHER-UNIVERSITÄT HALLE-WITTENBERG

Organising Committee: Karsten Mäder, *MLU Halle-Wittenberg, DE*; **Heidi Foth**, *MLU Halle-Wittenberg, DE;* **Rogério Gaspar**, *University of Lisbon, PT* & **Maria J**. **Vicent**, *CIPF Valencia, ES*

Sunday 19 June	
17:00 – 19:00	Registration at ESF desk at Luther-Hotel
19:00 – 19:30	Welcome drink
19:30 – 20:30	Dinner at Luther-Hotel
20:30 – 23:00	**Conference opening and Welcome message** **Michael Schillmeier**, *Ludwig-Maximilians-Universität, DE* and **Karsten Mäder**, *MLU Halle-Wittenberg, DE* Setting the Scene **Michael Schillmeier**, *Ludwig-Maximilians-Universität, DE* The Imitation of the Future - Nanomedical Innovations and STS
Monday 20 June	
Session I – The questions – Ethics and communication ***(at Leucorea center)***	
8:30 -9:30	**Robin Pierce**, *Delft University of Technology, NL* Centering the Patient in Translational Nanomedicine: The bedside is not an island
9:30 – 10:00	**Arwyn Jones**, *Cardiff University, UK* Uptake and Intracellular Fate of Nanomedicines
10:00 – 10:30	Coffee break

Session II – THE TOOLS. Mathematical models, Materials Science & Engineering	
10:30 – 11:30	**Karsten Mäder**, *Martin-Luther-Universität Halle-Wittenberg, DE* Noninvasive characterization of nanomedicines
11:30 – 12:30	**Rolf Nitzsche,** *Malvern Instruments GmbH, DE* Particle sizing at the Nanoscale
12:30 - 14:30	Lunch at Luther-Hotel
Session II – THE TOOLS. Mathematical models, Materials Science & Engineering (*continued*)	
14:30 – 15:30	**Tomas Etrych**, *Institute of Macromolecular Chemistry, CZ* Chemical responsive polymers
15:30 – 16:30	**Hans Oberleithner,** *Westfälische Wilhelms-Universität Münster, DE* Nanomechanics of Vascular Endothelium measured with Atomic Force Microscopy
16:30 – 17:00	Coffee break
17:00 – 18:00	**Hamid Gandehari**, *Utah Center for Nanomedicine, US* Recombinant polymers for drug and gene delivery
18:00 – 19:00	Poster Session I
19:00 – 20:30	Dinner at Luther-Hotel
20:30 – 21:30	Tutorials *(at Luther-Hotel)* Ethics - Tutorials Modelling - Tutorials Particle sizing
Tuesday 21 June	
Session III – THE TOOLS. Molecular Characterization, Cellular and whole body fate *(at Leucorea center)*	
8:30 -9:30	**Alfred Nordmann**, *Technische Universität Darmstadt, DE* Ethical and social aspects of Nanomedicine
9:30 – 10:00	**Anne Barnett**, *Izon Science Limited, UK* SIOS: A new impedance-based measurement technique for characterisation and advanced analysis of particle systems for nanomedicine, drug delivery and diagnostics **Anna Julia Wlodarczyk**, *Jagiellonian University, PL* A 3-D model of human bronchial epithelium â a more realistic in vitro tool for assessing toxicity of inhaled nanoparticles **Svetlana Zakharchenko**, *Technische Universität Dresden, DE* Fully biodegradable self-rolled polymer tubes for cells encapsulation
10:00 – 10:30	Coffee Break
10:30 – 11:30	**Molly Stevens,** *Imperial College London, UK* Bone Engineering
11:30 – 12:30	**Andreas Briel**, *nanoPET Pharma GmbH, DE* Size-activity relationships in nanosized diagnostics
12:30 - 14:30	Lunch at Luther-Hotel

Session IV: The Issues – Nanotoxicology *(at Leucorea center)*	
14:30 – 15:30	**Heidi Foth**, *Martin-Luther-Universität Halle-Wittenberg, DE* Nanotoxicology – what do we know and which safety do we need?
15:30 – 16:00	**Muhammad Asif,** *Linkoping university, SE* The potential application of functionalized ZnO nanorod as electrochemical (glucose and metal ions) biosensors and photodynamic therapy for Intracellular environment **Aneta Fraczek-Szczypta,** *University of Science and Technology in Krakow, PL* Preliminary investigation of different types of carbon nanotubes with osteoblast and macrophage cells **Maros Halama,** *Technical University of Kosice, SK* Assessment of life-time of metallic nanoparticles in simulated body fluids
16:15 – 19:30	Walking tour in Wittenberg
19:30	Dinner at Luther-Hotel
Wednesday 22 June	
Session V – Clinical needs and applications *(at Leucorea center)*	
8:30 -9:30	**Charlotte Kloft**, *Freie Universitaet Berlin , DE* Mathematical modeling as a tool in Nanomedicine
9:30 – 10:00	**Ashok Bankar,** *University of Pune, IN* Anti-biofilm activity of bio-inspired nanoparticles against the pathogenic microbes **Branko Trajkovski, Charité -** *Universitätsmedizin Berlin, DE* New implant coating platform for local drug delivery **Luis Bimbo,** *University of Helsinki, FI* Mesoporous silicon particles as emerging Nanomedicine carriers
10:00 – 10:30	Coffee Break
10:30 – 12:30	Poster Session II
Session V – Clinical needs and applications (*continued*)	
12:30 - 14:30	Lunch at Luther-Hotel
14:30 – 15:30	**Kostas Kostarelos**, *University of London, UK* Applications and Toxicity of Carbon Nanotubes
15:30 – 16:30	**Thomas Kissel**, *Philipps Universität Marburg, DE* Polymeric nanoparticles
16:30 – 17:00	Coffee break
17:00 – 18:00	**Raymond Schiffelers**, *Utrecht University, NL* Liposomal drug delivery
18:00 – 19:00	**Uta Griesenbach,** *Imperial College London, UK* Gene Therapy to the lung
19:00 – 21:00	Dinner at Luther-Hotel
21:00 – 22:00	Tutorials (at Luther-Hotel) Tissue engineering – Diagnostics - Nano-DDS

Thursday 23 June	
Session VI - Lab to clinic nanopharmaceuticals *(at Leucorea center)*	
8:30 -9:30	**Maria Vicent**, *CIPF Centro de Investigacion Prince Felipe Research Centre, ES* Polymer Conjugates
9:30 – 10:00	**Catarina Goncalves,** *Minho University, PT* Self-assembled dextrin nanogels for biomedical applications **Mirjam Hemmelmann,** *Johannes Gutenberg - Universität Mainz, DE* HPMA based amphiphilic copolymers for drug delivery over the blood brain barrier **Ondrej Sedlacek,** *Institute of Macromolecular Chemistry AS CR, CZ* Multilevel targeting of Auger electron emitters to close proximity of DNA in tumor cells by DNA ellipticine-polymer carrier conjugates
10:00 – 10:30	Coffee break
10:30 – 11:30	**Andreas Jordan**, *MagForce Nanotechnologies AG, DE* Nanotherm
11:30 – 12:30	**Sasha Kabanov,** *University of Nebraska, US* Polymer Micelles
12:30 - 14:30	Lunch at Luther-Hotel
Session VI - Lab to clinic nanopharmaceuticals (*continued*)	
14:30 – 15:30	**Patrick Hunziker***, University of Basel, CH* Challenges for Clinical applications of nanomedicine
15:30 – 16:30	**Rogerio Gaspar**, *Faculdade de Farmácia da Universidade de Lisboa, PT* Regulatory and translation
16:30 – 17:00	Coffee break
17:00 – 19:00	Poster Session III
19:30	Get together Drink and Conference Dinner at Luther-Hotel
Friday 24 June	
Session VII - Clinical status and outlook *(at Leucorea center*	
8:30 -9:30	**Twan Lammers**, *University Clinical RWTH Aachen, DE* Clinical needs and application: cancer
9:30 – 10:00	**Delphine Fayol**, *Université Paris 7, FR* Magnetic cells as tool for regenerative medicine **Jef Ryken**, *Katholieke Universiteit Leuven, BE* Specific virus targeting with antibody-functionalized magnetic beads **Joana Silva**, *University of Lisbon, PT* Design of a Therapeutic Melanoma Vaccine Candidate: Coencapsulation of a Melanoma Peptide Antigen and a CpG Oligonucleotide as an Adjuvant into Polymeric Nanoparticles
10:00 – 10:30	Coffee break

10:30 – 11:30	**Viola Vogel**, *ETH Zurich Swiss Federal Institute of Technology, CH* Tissue-Engineering-mechanical forces
11:30 – 12:30	**Dusica Maysinger**, *McGill University, CA* Nanomedicines for frustrated microglia
12:30 – 13:00	Concluding remarks and outlook
13:00	Departure

List of accepted posters

1.	Afadzi Mercy	Intracellular Delivery of Nanoparticles using Ultrasound. *(Mercy Afadzi(1), Yngve Hofstad Hansen(1), Tonni Franke Johansen(2), Svein-Erik Måsøy(2), Bjørn Angelsen(2), Catharina de L. Davies (1))*
2.	Ajalloueian Fatemeh	Fabrication a PVA/organo-nanoclay bionanocomposite for Medical Applications
3.	Allmeroth Mareli	Modifying the body distribution of HPMA based copolymers as potential drug carriers by molecular weight and aggregate formation monitored with Positron Emission Tomography *Mareli Allmeroth (1), D. Moderegger (2), B. Biesalski (3), F. Rösch (2), O. Thews*
4.	Andrade Fernanda	Effect of type of poloxamer and production parameters in the encapsulation of insulin into polymeric micelles *Andrade, F.1, Antunes, F.1, Videira, M.2, Ferreira, D.1, Sarmento, B.1,3- 1 - Department of Pharmaceutical Technology, Faculty of Pharmacy, Univer*
5.	Azzopardi Ernest Anthony	Polymer therapeutics for safe effective targeting of antimicrobial therapy in infection *Authors: Ernest A. Azzopardi , Elaine L. Ferguson, David W. Thomas - Affiliation: Wound Biology Group, School of Dentistry, Cardiff University, Cardiff,CF1*
6.	Balter Adi	Surface Engineered Porous Silicon-based Nanostructures for Cancer Therapy *Adi Balter1, Naama Massad-Ivanir2 and Ester Segal2,3* *1The Inter-Departmental Program of Biotechnology, 2Department of Biotechnology and Food Engineering, 3The Russell Berrie Nanot*
7.	Boca Sanda Cosmina	Plasmon-assisted photothermal therapy of cancer cells using chitosan-coated triangular silver nanoparticles, *Sanda Boca1, Monica Potara1, Aurelie Juhem3, Patrice Baldeck2 , Simion Astilean1* *1Nanobiophotonics Center, Institute for Interdisciplinary Exp*
8.	Bonnaud Cécile	Smart vesicles for drug delivery, Cécile Bonnaud, Dr. Isabelle Geissbühler. Prof. Alke Fink

9.	Brymora Katarzyna	Ab initio modelling of ligands surface effects on nanoparticles used in magnetohyperthermia *K.Brymora (a) S.Ammar (b) N.Yaacoub (a) J.-M.Greneche (a) and F.Calvayrac (a)* *a : LPEC UMR6087 Universite du Maine Le Mans* *b : ITODYS Universite Paris Diderot*
10.	Carenza Elisa	Anionic magnetic nanoparticles for cell tracking *E. Carenza (a), A. Rosell (b), L. Levander (a), V. BarcelÃ³ (b), J. Montaner (b), A. Roig (a)* *(a) Institut de CiÃ¨ncia de Materials de Barcelona (ICMAB-CSIC), Campus UAB, 08193, Bellater*
11.	Coghi Maria Donata	Single-Domain Protein A-Engineered Magnetic Nanoparticles: Toward a Universal Strategy to Site-Specific Labeling of Antibodies for Targeted Detection of Tumor Cells. *Maria Donata Coghi‡, Serena Mazzucchelli†‡,*
12.	Colombo Miriam	Uniform LPS-Loaded Magnetic Nanoparticles for the Investigation of LPS/TLR4 Signaling *Colombo, Piazza, Granucci, Peri and Prosperi* *Dipartimento di Biotecnologie e Bioscienze* *Università degli Studi di Milano-Bicocca*
13.	De Backer Lynn	Influence of natural pulmonary surfactant on the efficacy of siRNA loaded dextran nanogels *L. De Backer, J. Demeester, S. De Smedt, K. Raemdonck* *Ghent Research Group on Nanomedicines, Laboratory of General Biochemistry and Physical Pharmacy, Ghent Unive*
14.	De Freitas Dias Tomás Miguel	Evaluation of cell-free DNA integrity as a potential biomarker in cancer diagnosis *Tomás de Freitas Dias; BERG-IBB and INESC-MN*
15.	Dehshahri Ali	Modification of PAMAM dendrimer lead to efficient nanocarriers for plasmid DNA delivery *Dehshahri, Ali 1,2; Hoseini Alhashemi, Samira 1,2* *1Shiraz University of Medical Sciences, Shiraz, Iran ;* *2Pharmaceutical Sciences Research Center, Shiraz, Iran*
16.	D'hollander Antoine	Specific biological targeting using branched gold nanoparticles for tumor targeting therapy *A. D'Hollander1,2, H. Jans1,2, K. Jans1, B. Van de Broeke, U. Himmelreich3, L. Lagae1,4* *1 Imec, SSET—Functional Nanosystems, Kapeldreef 75, 3001 Leuven, Belgium*
17.	Draheim Christina	A nanocapsule drug delivery system for the therapy of inflammatory bowel dieseases
18.	Duro Aroa	Well defined and Versatile Polyglutamates
19.	Ferreira Silvia Alexandra	Supramolecular Assembled Nanogel Made of Mannan *Sílvia A. Ferreira*1, Tommy Cedervall 2, Sara Linse 2, Manuel Vilanova 3, Francisco M. Gama 1* *1 IBB-Institute for Biotechnology and Bioengineering, Centre for Biological Engineering, University of Minho, Ca*

20.	Galbiati Elisabetta	Investigating the structural biofunctionality of antibodies conjugated to magnetic nanoparticles, *E. Galbiati, P. Verderio, A. Natalello, P. Tortora, S. M. Doglia, D. Prosperi*
21.	Hellmund Markus	Dendritic Polyglycerols in Nanomedicine *Markus Hellmund, Fatemeh Sheikhi, Harald Krüger, Ariane Tschiche, Marcelo Calderon, Rainer Haag*
22.	Herd Heather	Ascertaining biological mechanisms in macrophages and epithelial response to silica nanoparticle physiochemical characteristics to aide in the engineering of novel nano diagnostics and -therapeutics *H. Herd (1-3), N. Daum (2,4), H. Ghandehari (1,2,5), C.*
23.	Hirsch Vera	Influence of surface charge on protein adsorption on polymer coated iron oxide nanoparticles
24.	Hoffmann Stefan	HES 450 as Potential Drug Delivery System for Passive Tumor Targeting: An In Vivo Study in Mice Using NIR-Optical Imaging
25.	Ivukina Ekaterina	Barnase:barstar system as a platform for complexes with fluorescent nanodiamonds *E.A. Ivukina1, V.K.A. Sreenivasan2, O.A. Stremovskiy1, A.V. Zvyagin2 and S.M. Deyev1* *1 Shemyakin and Ovchinnikov Institute of Bioorganic chemistry, Russian Academy of Science*
26.	Jagannathan Ramya	Speculation on the nanotoxicological perspectives *Ramya Jagannathan, A B Mandal,* *Chemical Laboratory, Council of Scientific & Industrial Research, Central Leather Research Institute, Adyar, Chennai - 600020, India - S Murugan and T S Kumaravel* *GLR Labor*
27.	Jager Eliezer	“Stealth” nanoparticles platform by self-assembly of new degradable polyester and reactive HPMA-based polymers *Eliézer Jäger(1), Alessandro Jäger(1), Petr Chytil(1), Tomáš Etrych(1), Blanka Říhová(2), Karel Ulbrich(1), Petr Štěpánek(1)* *(1) In*
28.	Jain Purvi	Nano particles for bio-imaging
29.	Jain Aastha	Cell Penetrating Peptides and their application in human theragnostics *Aastha Jain* and Archana Chugh, Kusuma School of Biological Sciences, Indian Institute of Technology, Delhi, India*
30.	Jones Roanne	Effect of collagen substrate nanostructure and mechanical properties on the ex vivo expansion of corneal stem cells *Roanne R Jones, Bo Chen, Shengli Mi, Bernice Wright, Ian W Hamley and Che J Connon - Stem Cells and Nanomaterials Laboratory, University of Reading, RG6 RUB*

31.	Judd Amy	Nanomaterials for the advancement of infection control, *Amy Judd*, Jon Heylings#, Ka-Wai Wan*,* **School of Pharmacy, Keele University, ST5 5BG, UK* *Dermal Technology Laboratory Ltd, Med IC4, Keele university science and business Park, Keele, Staffordshire,*
32.	Khoruzhenko Antonina	Detection of the role of mTOR kinase in migration and invasion of malignant cells
33.	Kucerova Jana	Enzyme-biofunctionalized nanofibers as a new material for wound treatment *J. Kucerova1, M. Slovakova1, Z. Bilkova1, M. Juklickova2, A. Klabanova2, D. Stranska2* *1University of Pardubice, Faculty of Chemical Technology, Dept. Biological and Biochemical Scie*
34.	Kumar Vijay	Gd@Au15: A magic magnetic gold cluster for cancer therapy and bioimaging *Brahm Deo Yadav and Vijay Kumar* *Dr. Vijay Kumar Foundation, 1969 Sector 4, Gurgaon 122001, India*
35.	Kutza Johannes	A new model system for the investigation of in vitro drug release from Hydrophilic polymore-based gels, nanoparticles and water soluble polymers by multispectral fluorescence imaging
36.	Lian Qiong	Multifunctional Magnetic Idarubicin-Loaded Nanoparticles for Magnetically Guided and Improved Drug Delivery *Qiong Lian,† Eva-Marie Prinz,‡ Melanie Schnabel,¡ì Rolf Hempelmann,‡ Gerhard Wenz,¡ì Claus-Michael Lehr, †,* Brigitta Loret*
37.	Liu Li	Multifunctional nano carrier for targeted gene delivery *Authors: Li Liu, Mengyao Zheng, Markus Benfer, Thomas Kissel* *Affiliation: Department of Pharmaceutics and Biopharmacy, Philipps-University Marburg, Ketzerbach 63, D-35032 Marburg*
38.	Malanchuk Oksana	Architecture of mTORC2 *O.M. Malanchuk, V.V. Filonenko* *The Institute of Molecular Biology and Genetics NAS of Ukraine, 150, Zabolotnogo st., Kyiv 03143, Ukraine*
39.	Marcu Aurelian	Hetero-Nanostructure Properties Control using PLA-VLS Fabrication Method
40.	Martens Thomas	Evaluating intravitreal mobility of nanomedicines in ocular gene therapy *Thomas F. Martens, Dries Vercauteren, Katrien Forier, Katrien Remaut, Stefaan C. De Smedt, Kevin Braeckmans* *Ghent University, Laboratory of General Biochemistry and Physical Pharma*
41.	Mell Nico Alexander	Nanoparticles for the local targeting of interleukin-10 to the inflamed intestinal mucosa *Mell, N. A. 1,2, Lehr, C.M. 1,2, Collnot, E.-M. 1,2* *1 Department of Biopharmaceutics and Pharmaceutical Technology, Saarland University, Saarbrücken, Germany 2 Depa*

42.	Mittal Ankit	Transcutaneous Vaccination via Particulate Carrier System *Ankit Mittal1,2, Steffi Hansen1,2 and C.M. Lehr1,2* *1 Helmholtz Institute for Pharmaceutical Research Saarland (HIPS), 2 Helmholtz-Center for Infection Research (HZI), Saarland University, Saarbr*
43.	Mueller Torsten	A force toolkit for cell and molecular research *Torsten Müller, Carmen Pettersson, Rachel Owen, Tanja Neumann, Anna Wozniak, Joost van Mameren*
44.	Pelipenko Jan	Formulation of nanofibers and their effect on the cell behavior
45.	Pereira Paula	Glycol chitosan-based nanoparticles for siRNA delivery *P. Pereira 1, F. M. Gama 1* *1 IBB-Institute for Biotechnology and Bioengineering, Centre for Biological* *Engineering, Minho University, Campus de Gualtar 4710-057, Braga, Portugal.*
46.	Prajapati Vijay Kumar	Targeted killing of Leishmania donovani in vivo and in vitro with Amphotericin B attached to functionalized Carbon Nanotube *Vijay Kumar Prajapati1, Kalpana Awasthi2, Thakur Prasad Yadav2, Madhukar Rai1, Onkar Nath Srivastava2, Shyam Sundar1* *1Infectious Di*
47.	Ramezani Mohammad	Targeted Delivery of Nanoparticle-Aptamer Conjugates to Acute Lymphoblastic Leukemia T-cells *Mohammad Ramezani1, Khalil Abnous1, Nasim H. Shahidi2* *1 Nanotechnology Research Centre, School of Pharmacy, Mashhad University of Medical Sciences, P.O. Box 9177*
48.	Ryken Jef	Specific virus targeting with antibody-functionalized magnetic beads *J. Ryken, H. Jans, K. Jans, S. Peeters, W. Van Roy, L. Lagae.*
49.	Sanchez Lorena	Design and characterization of biocatalytic virus-like particles
50.	Santos Ferreira Ines	Preliminary Formulation Studies on a-Tocopherol Derivatives-Loaded PMMA Microparticles
51.	Schädlich Andreas	In vivo and ex vivo studies of PEG-PLA block copolymer nanoparticles for tumor visualisation and treatment
52.	Tenambergen Frederike	*Title not available*
53.	Thom Kathleen	Application of contrast agent Resovist® for tracking of aluminum hydroxide adjuvant using magnetic resonance imaging *K. Thom1, K. Aurich2, J. Sündermann1, G. Glöckl1, J.-P. Kühn3 and W. Weitschies1* *1Institute of Pharmacy, EMA University of Greifswald, G*

54.	Vreto Lutfi	Use of nanomedicine for elderly
55.	Vucen Sonja	Comparative study of biodegradable polymers on the particle size, surface morphology and encapsulation efficiency of ketoprofen loaded nanoparticles. *Sonja Vucen1, Gordana Vuleta2, Nenad Ignjatovic3, Dragan Uskokovic;3* *1Medical Faculty, Department of pharmacy, University of Banja Luka, Bosnia and Hercegovina* *2Faculty of Pharmacy, Department of the pharmaceutical technology and cosmetology, University of Belgrade, Serbia* *3Institute of technical sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia*
56.	Vystrcilova Lucie	High-Molecular-Weight Polymer Drug Carriers for Cancer Treatment and Imaging
57.	Wlodarczyk Anna Julia	A 3-D model of human bronchial epithelium – a more reliable in vitro tool for assessing toxicity of inhaled nanoparticles *Wlodarczyk AJ (1,2), Jones T (2), Undas A (1), and BéruBé KA (3) (1) Institute of Cardiology, Jagiellonian University School of Medicine, 80 Pradnicka St., 31-202 Cracow, Poland (2) School of Earth and Ocean Sciences, Cardiff University, Park Place, Cardiff CF10 3YE, Wales, UK (3)School of Biosciences, Cardiff University, Museum Avenue, Cardiff CF10 3AX, Wales, UK*
58.	Yamada Hiroe	Synthesis of biodegradable starch derivatives for gene delivery *Hiroe Yamada a, Carolin Thiele a, Brigitta Loretz a, Gerhard Wenz b, Claus-Michael Lehr a* *a Helmholtz Institute for Pharmaceutical Research Saarland, SaarbrÃ¼cken, Germany* *b Saarland Univer*
59.	Zakharchenko Svetlana	Fully biodegradable self-rolled polymer tubes for cells encapsulation. *Svetlana Zakharchenko and Leonid Ionov* *Leibniz Institute of Polymer Research Dresden*
60.	Zamith Cardoso Andre Joao	Self organization and morphological transformations of nanostructures in microconfined environment for Drug Release, *Andre Zamith-Cardoso, Hans-Georg Braun, IPFDD*