

NM-06 **Nano-Hybrid Composites for Dental Application based on Monomer-free ORMOCER Resins**

H. Wolter, S. Nique, C. Gellermann, W. Storch, R. Maletz and T. Neumann

NANOTECHNOLOGY FOR DIAGNOSIS AND TREATMENT OF CANCER

C-01 **Antitumor Activity of Zinc Oxide Nanocomposites**

E.R. Arakelova, A.M. Khachatryan, K.S. Avjan, A.S. Voskanyan, G.N. Mirzoyan, T.L. Jivanshiryan, S.H. Ghazaryan, K.P. Grigoryan, F.G. Arsenyan, R.E. Muradyan, G.V. Gasparyan

C-02 **Nanovehicles loaded with meta-tetra(hydroxyphenyl) chlorine for photodynamic treatment of cancer**

F. Moret, C. Compagnin, I. Rio, F. Selvestrel, M. Mognato, L. Celotti, F. Mancin, E. Reddi

C-03 **Photothermal destruction of cancer cells with plasmonic clusters of gold nanoparticles encapsulated in mesoporous silica**

I. Ortega, P. Botella, M. Quesada, M.T. Navarro, A. Corma, E. Fernández, R.F. Madrigal and A. Fimia

C-04 **Transfection efficacy of Ch-PLGA-NP/OMR nanoplexes in two lung cancer cell lines after nebulization**

C. Philippi, N. Nafee, B. Loretz, M. Dong, T. Muerdter, M. Bur, U. F. Schaefer, U. Klotz, C. M. Lehr

C-05 **Bioinspired synthesis of magnetite nanoparticles and their internalization into breast cancer and umbilical vein endothelial cells**

S. Shanmugam, S. Takahama, H. Zhong, T. Nakanishi and T. Osaka

C-06 **Nanoparticle-Drug-Conjugates for Magnetic Fluid Hyperthermia and Controlled Release**

J. Gao, M. Fischler, A. Jordan, V. A. Erdmann

C-07 **Pigment protein complexes and gold- nanoparticles for cancer diagnostics and therapy**

F.-J. Schmitt, H. Südmeyer, A. Matschulat, M. Schöngen, T. A. Roelofs, S. Rakowsky, G. Grasczew, H. J. Eichler

DRUG DELIVERY, GENE DELIVERY, AND CONTROLLED RELEASE

DD-01 **Water-Soluble Chitosan-Cyclodextrin Conjugates as Efficient Gene Vectors**

Y. Ping, J. Lia

DD-02 **PLGA Nanoparticles for intravenous delivery of poorly water soluble and hydrolysis susceptible N-epoxymethyl-1,8-naphthalimide (ENA) compound**

Y. Dong, W. K. Ng, U. Surana, R.B.H. Tan

DD-03 **Targeted Delivery of Magnetic Aerosol Droplets to the Lung**

R. Baumann, G. Glöckl, S. Nagel, W. Weitschies

DD-04 **Nanomaterials for Diagnosis and Gene Delivery**

H. Bisht, L. Maurizi, A.L. Papa, F. Bouyer, D. Vandroux, P. Walker, N. Millot

DD-05 **Evaluation of fabrication parameters of biodegradable Nanoparticles of Chitosan on a P53 gene delivery system**

P. Peymani, M. Jaberipour, M. Hamidi, S. Affi, A.-M. Tamaddon

DD-06 **Lipid aldehyde-Induced Perturbation of LDL – a new paradigm in cell-specific targeting of nanomaterials**

K. Prapainop, G.E. Boldt and P. Wentworth Jr.

NANOBOMATERIALS, TISSUE ENGINEERING, AND REGENERATIVE MEDICINE

BM-01 **Biocompatibility of osteoblast-like cells on titanium implants**

J. Frankova, V. Pivodova, A. Zdarilova, J. Ulrichova

BM-02 **Controlled Degradation of Functionalizable Electrospun Scaffolds for Tissue Engineering**

F. Spano, M. Liley, C. Hinderling, H. Hall, T.C. Lühmann, H. Sigrist

BM-03 **Development of macroporous interconnective scaffolds for bone cultures**

C. Santos, M. A. Martins, M.E.V. Costa, M. Almeida, R.P. Franke

BM-04 **Remodeling of Calcium Phosphate Matrices on TiAl₃V₄ surfaces in vitro**

C. Santos, J. Fink, R. Fuhrmann, T. Scharnweber, M. Almeida, M.E.V. Costa, R.P. Franke

BM-05 **Nanomaterial carbon-based coating for bioimplants**

F. Cerny, V. Jech, S. Konvickova

NANOBIOANALYTICS, DIAGNOSTIC TOOLS, AND SENSORS

A-01 **Clickable quantum dot probes for in vivo metabolic imaging**

A. Bernardin, A. Cazet, P. Delannoy, F. Vinet, D. Bonnaffé, I. Texier

A-02 **Indocyanine Green - Doped Lipid Nanoparticles for Non-Invasive Fluorescence Imaging in-vivo**

F. P. Navarro, A. Bernardin, M. Berger, S. Guillermet, V. Josserand, M. Goutayer, I. Texier

A-03 **Microfluidic-enhanced mass spectrometric techniques for functional (glyco)proteomic survey**

L. Bindila, F. Ricoul, M. Cubizolles, R. Ossig, J. Schneidenburger, J. Peter-Katalinic

A-04 **Synthesis of paramagnetic Gadolinium nanoparticles and**

investigation of their possible use in magnetic resonance imaging (MRI) and drug delivery

D. Stefanakis, D. Ghanotakis

A-05 **Disposable screen-printed chemiluminescent biochips for the simultaneous determination of four point-of-care relevant proteins.**

C.A. Marquette, F. Bouteille, B.P. Corgier, A. Degiuli and L.J. Blum

A-06 **Patterned Probe Multilayer Using pH-Induced Electrostatic Properties of Protein Particle for Ultrasensitive Biosensor**

H.-S. Seo, S.-E. Kim, J.-H. Lee, K.-Y. Ahn, J.-A. Song, J.-W. Shin, K.-Y. Han and J. Lee

A-07 **Development of ultrasensitive specific antigen diagnostics through 3-dimensional bio-nano fabrication**

J.-H. Lee, J.-S. Kim, J.-S. Park, K.-Y. Han, H.-S. Seo, K.-Y. Ahn, J.-A. Song, E.-J. Lee, J.-W. Sin, S.-E. Kim, J. Lee

A-08 **Zeolite L Nanocontainers for in-vivo and in-vitro Imaging**

M. Tsotsalas, K. Kopka, S. Wagner, M. Law, M. Busby, E. Gianolio, S. Aime, L. De Cola

A-09 **On-Line Nano-HPLC/MS and Tandem MS for Biomarker Discovery and Validation in Native Glycosphingolipid Mixtures**

S. Kirsch, M. Zarei, L. Bindila, J. Peter-Katalinic

A-10 **Imprinting of chemical functionalized acrylates for bioanalytics**

R. Kirchner, M.-K. Kaiser, B. Adolphi, R. Landgraf, W.-J. Fischer

A-11 **Bionanomaterial-based Optical Aptasensor for Ultrasensitive Detection of Platelet-Derived Growth Factor**

S.-E. Kim, K. Y. Ahn, J.-U. Shin, J.-H. Lee, E.-J. Lee, S.-J. Kwon, H.-S. Seo, J.-S. Park, K.-Y. Han, J.-A. Song, J. Lee

A-12 **Direct Processing of the MCG and MEG Signals**

R. Sklyar

TOXICOLOGY AND RISK ASSESSMENT

TOX-01 **Pulmonary Toxicity and Translocation of Nanodiamonds in Mice**

Y. Yuan, X. Wang, G. Jia, H. Wang, Y. Liu

TOX-02 **Novel luminescence assay for the risk assessment of silica nanoparticles**

B. Wahl, N. Daum, H.-L. Ohrem, C.-M. Lehr

THEORETICAL STUDIES

TH-01 **Nanobio Channels: Classical and Hybrid Molecular Dynamics Simulations Methods**

N. Maftouni, F. Kowsari

Scientific Advisory Board

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Venue

The NanoMed 2009 will be held in the Great Lecture Hall of the Charité main building in central Berlin. The Charité is one of Europe's largest University Hospitals. The building is situated in the heart of the German capital, only a few walking minutes from the new Central Station, the Reichstag (the German Parliament) and the governmental residence.

Great Lecture Hall, Luisenstraße 64 / Philippstraße, 10117 Berlin

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Conference President

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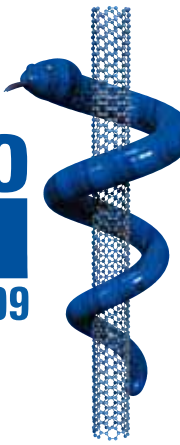
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Charité, Berlin

6th International
Conference on
Biomedical Applications
of Nanotechnology

Program

Program

WEDNESDAY, MARCH 4

- 08:00 Registration
09:00 **Welcome address**
Andreas Jordan, Magforce Nanotechnologies, Berlin, Germany
09:15 Conference key note
Transforming Nanotechnology into Solutions for 21st Century Healthcare Challenges
Paras N. Prasad, University at Buffalo, New York, USA
10:00 Coffee break / Poster show

NANOOBJECTS FOR MEDICAL APPLICATIONS

- 11:00 **Nanoparticles for Diagnostic and Therapeutic Applications – The Potential of SuperParamagnetic Iron Oxide Nanoparticles (SPION)**
Heinrich Hofmann, Ecole Polytechnique Fédérale de Lausanne, Switzerland
11:30 **Silanization of Magnetic Nanocrystals in Microemulsions**
Patrizia Floris, University of Cagliari, Italy
12:00 **Accumulation of Iron Oxide Nanoparticles in Cultured Brain Astrocytes**
Mark Geppert, University of Bremen, Germany
12:30 **Particle Clearance – Indispensable, but a Serious Barrier for Advanced Inhalation Therapy**
Michael Bur, Saarland University, Saarbrücken, Germany
13:00 Lunch break
14:00 **Nano- to Micro-Structured Ceramic Wires as Surfaces for Cell Adhesion**
Michael Veith, INM - Leibniz Institute for New Materials, Saarbrücken, Germany
14:30 **Production of Nanocrystalline Dispersions for Pharmaceutical Applications**
Stefan Mende, Netzsch Feinmahltechnik, Selb, Germany
15:00 **Study of the Micro- and Nanostructured Silicon for Biomedical Applications**
Irina Kleps, IMT-Bucharest, Romania
15:30 Coffee break / Poster show
18:00 End

THURSDAY, MARCH 5

NANOTECHNOLOGY IN CANCER TREATMENT

- 09:00 **Thermotherapy using magnetic nanoparticles: Principles and clinical application**
Andreas Jordan, Magforce Nanotechnologies, Berlin, Germany
09:30 **Theoretical Study of Quantum Dot/Organic Ligand Interface for Application in Early Cancer Detection**
Rodion Belosludov, Tohoku University, Sendai, Japan
10:00 **Use of Nanoshells for Combined Two-Photon Imaging and Therapy of Cancer**
Emily Shannon Day, Rice University, Houston, USA
10:30 **Nanotechnology in Cancer Treatment**
Manfred Georg Krukemeyer, University of Münster, Germany
11:00 Coffee break / Poster show

NANOMATERIALS IN DENTISTRY

- 11:30 Key note
Nanotechnology in Dental Materials – Tiny Particles Causing a Large Change in Dentistry
Thomas Luchterhand, 3M ESPE, Seefeld, Germany
12:00 **Nanomaterials in Preventive Dentistry – Recent Trends and Developments**
Matthias Hannig, Saarland University Hospital, Homburg, Germany
12:30 **Novel Ti-Based Nanocomposites for Dental Applications**
Mieczyslaw Jurczyk, Poznan University of Technology, Poznan, Poland
13:00 Lunch break

DRUG DELIVERY, TARGETING AND CONTROLLED RELEASE

- 14:00 Key note
Nanoparticles at the Gastrointestinal Barrier – Aspects of Bioadhesion
Alf Lamprecht, University of Besançon, France
14:30 **Antitumoural Activity and Distribution of Taxol Carried by Polymeric Nanospheres for Magnetic Drug Targeting**
Gábor Lancz, Slovak Academy of Sciences, Kosice, Slovakia
15:00 **Nanoparticle Bioconjugates by Laser Ablation – A Novel Method Aiming at Pure Drug and Gene Delivery**
Svea Petersen, Laser-Zentrum Hannover, Germany
15:30 Coffee break / Poster show
16:00 **A Chemical Approach to Cell-Type Specific Targeting of Nanoparticles**
Paul Wentworth, University of Oxford, UK

- 16:30 **The Layer-by-Layer Self-Assembly. The Powerful Technique for Drug Delivery Applications**
Dmitry Volodkin, Max Planck Institute for Colloids and Interfaces, Golm, Germany
17:00 **Nanoscaled Dynamic Polymer Particles for Therapeutic DNA and RNA Delivery**
Ernst Wagner, Ludwig Maximilian University, Munich, Germany
17:30 Poster show
20:00 Conference Banquet (Ethnological Museum in Berlin-Dahlem)

FRIDAY, MARCH 6

NANOBIMATERIALS AND REGENERATIVE MEDICINE

- 09:00 Key note
Polymeric Nanofibers as Extra-Cellular Matrix Mimic Scaffolds for Tissue Engineering
Cato Laurencin, University of Connecticut, Hartford, USA
09:30 **Biomimetic Nanomaterials for Implants and Regenerative Medicine**
Gianluca Ciardelli, Politecnico di Torino, Italy
10:00 **Distribution of Superparamagnetic Nanoparticles within Textile Implants for Positive Contrast Visualisation in MRT**
Ioana Slabu, RWTH Aachen, Germany
10:30 Coffee break / Poster show

POTENTIAL RISKS OF NANOPARTICLES

- 11:00 Key note
Sustainable and Smart Nanoparticles Will Enable Nanotechnologies
Paul Borm, Hogeschool Szuyd, Heerlen, The Netherlands / MagnaMedics, Aachen, Germany
11:30 **Laser Generated Pure Nanoparticulate Reference Material for Risk Assessment Studies**
Stephan Barcikowski, Laser-Zentrum Hannover, Germany
12:00 **Size Dependent Cytotoxicity of Gold Nanoparticles**
Annika Leifert, RWTH Aachen, Germany
12:30 **NanoMed Round Table – Nanomedicine Ethical, Regulatory, Social and Economic Environment**
Kuan-Ting Chi, Technology University of Delft, The Netherlands
13:00 Lunch break

NANOBIOANALYTICS AND DIAGNOSTIC TOOLS

- 14:00 Key note
Nanomedicine – Driving Breakthroughs in Healthcare
Hans Hofstraat, Philips Research Laboratories, Eindhoven, The Netherlands
14:30 **Up-Conversion Nanoparticles for Optical Molecular Imaging**
Karen Köhler, Bayer Technology Services, Leverkusen, Germany
15:00 **Nano-Particulate Contrast Agents for Molecular Photoacoustic Imaging and Microscopy**
Frank Stracke, Fraunhofer Institute for Biomedical Engineering, St. Ingbert, Germany
15:30 Coffee break
16:00 **Carbon Nanofiber Based Chips for Biomedical Applications**
Hua Chen, NASA Ames Research Center, Moffett Field, USA
16:30 **Carbon Dots Synthesized through Aqueous Route as an Bioimaging Agent**
Quin Li, Curtin University of Technology, Perth, Australia
17:00 **Concluding Remarks**
Andreas Jordan, Conference President, Magforce Nanotechnologies, Berlin, Germany
17:30 End of Conference

Conference Banquet

The conference dinner will take place on March 5, in the lobby hall of the Ethnological Museum in Berlin-Dahlem. In accord with the international character of the conference, a buffet with delicious meals from all continents will be served.

Shuttle Service to the Conference Banquet

Busses depart at 7 pm

Arrival at the Ethnological Museum at 7:30 pm

Dinner starts at 8 pm

Busses return to the Charité Campus at 11 pm

Please have your admission ticket with you!

Ethnologisches Museum
Lansstraße 8
14195 Berlin-Dahlem



Poster Presentations

NANOPARTICLES AND NANOOBJECTS

- NP-01 **The influence of magnetite nanoparticles on human leukocyte activity**
A. Džarová, V. Závřisová, A. Šprincová, M. Dubnicková, M. Koneracká, M. Timko, P. Kopcanský
NP-02 **Effective immobilization of Antibody on the Solid surface using Protein nanoparticle.**
K.-Y. Ahn, J.-S. Park, K.-Y. Han, H.-S. Seo, J.-A. Song, E.-J. Lee, J.-H. Lee, S.-J. Kwon, J. Lee
NP-03 **Influence of metal oxide nanoparticles on polymorphonuclear neutrophils**
S. Koenig, B. Drewelow, J. Schubert, R. G. Mundkowski
NP-04 **Preparation and Evaluation of Pharmaceutical Parameters of Alginate-Methotrexate Microspheres Produced by Emulsification Technique**
S. Afifi, S. Alipour, H. Montaseri
NP-05 **Inhibition of selectin binding by functionalized gold nanoparticles**
M. Roskamp, S. Yekta, S. Enders, J. Dervede, H.-U. Reißig, S. Schlecht
NP-06 **Carbon coated nanomagnets for biomedical applications**
A.U.B. Wolter, Y. Krupskaya, K. Lipert, M. Lutz, S. Hampel, D. Haase, A. Leonhardt, B. Büchner, R. Klingeler

NANOMATERIALS FOR MEDICAL APPLICATIONS

- NM-01 **Gold/graphene nanocomposites: Synthesis and characterization**
G. Gonçalves, P.A.A.P. Marques, M.K. Sing and J.J. Grácio
NM-02 **Electrospun Chitosan/Poly Vinyl Alcohol Bio-Nanofibers and antimicrobial properties**
A. Gholipour, H. Bahrami, M. Nouri
NM-03 **A New Surface Modification Technique for Stabilizing Antibacterial Inorganic Nanostructured Materials on the Polymeric Surfaces**
R. Dastjerdi, M. Montazer and S. Shahsavan
NM-04 **Masterbatch Preparation, Fiber Spinning, Drawing and Texturing for Producing of Nanocomposite Textiles with Antibacterial Protection**
R. Dastjerdi, M. R. M. Mojtahedi and A. M. Shoshtari
NM-05 **Synthesis and magnetic properties of nanosized g-Fe₂O₃ nanoparticles embedded in a silica matrix**
V. Spasojevic, V. Kusigerski, M. Tadic, D. Markovic, M. Perovic, A. Mrakovic, B. Antic