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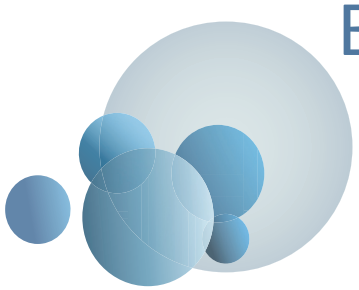

Biological Responses to Nanoscale Particles

SPP1313

International Conference on

"Biological Responses to Nanoscale Particles"

University of Duisburg-Essen, Essen, Germany
September 11-15, 2011

Programme

including Poster Sessions

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Programme - Overview

Sunday, Sept. 11

16.00 - 18.00	**Registration**
18.00 - 20.30	**Welcome reception**

Monday, Sept. 12

09.00 - 09.40	**Opening session and welcome addresses**
09.40 - 12.30	**Session I: Interactions of NPs with Biomolecules, Membranes and Cells – Part A**
10.40 - 11.00	Coffee Break
12.30 - 13.30	Lunch
13.30 - 18.10	**Session II: Interactions of NPs with Biomolecules, Membranes and Cells – Part B**
15.00 - 15.30	Coffee Break
18.10 - 19.30	Dinner
19.30 - 21.30	**Poster Session I**

Tuesday, Sept. 13

09.00 - 15.30	**Session III: Biological Impacts of NPs – Part A**
10.50 - 11.30	Coffee Break
12.50 - 14.00	Lunch
15.00 - 15.30	Coffee Break
15.30 - 17.20	**Session IV: Synthesis and Characterisation of NPs**
17.20 - 19.00	Free Time
19.00 - 23.00	**Conference Dinner**

Wednesday, Sept. 14

09.00 - 15.50	**Session V: Biological Impacts of NPs – Part B**
11.00 - 11.30	Coffee Break
13.30 - 14.30	Lunch
15.50 - 16.20	Coffee Break
16.20 - 18.40	**Session VI: Imaging and Diagnostics**
18.40 - 20.00	Dinner
20.00 - 22.00	**Poster Session II**

Thursday, Sept. 15

09.00 - 11.00	**Session VII: Assessment of NPs**
11.00 - 11.30	Coffee Break
11.30 - 13.00	**Conference Resumee and General Discussion**
13.00 - 14.00	Lunch
	Adjourn

Programme including Poster Sessions

Note: only the affiliation of the speaker is given

Sunday, Sept. 11

16.00 – 18.00 **Registration**
18.00 – 20.30 **Welcome reception**

Monday, Sept. 12

09.00 – 09.40 **Opening session and welcome addresses**

Session I: Interactions of NPs with Biomolecules, Membranes and Cells – Part A

Chair: R. Zellner

09.40 – 10.40 **Plenary lecture I:**
"Mechanisms of Biological Interaction of Nanoparticles with Applications to Intracellular Accumulation and Blood-Brain Barrier" ...
K. A. Dawson, *University College Dublin, IRL*

10.40 – 11.00 Coffee Break

11.00 – 11.30 **"Chemical and Mechanical Impact of Silica Nanoparticles on the Phase Transition Behaviour of Phospholipid Membranes in Theory and Experiment" (Invited lecture)** .....
C. Westerhausen, F. Strobl, R. Herrmann, A. T. Bauer, S. W. Schneider, A. Reller, A. Wixforth, M. F. Schneider
C. Westerhausen, *University of Augsburg, D*

11.30 – 11.50 **"On the Interaction of TiO_2 Nanoparticles with a Blood-Brain Barrier : A Reversibility of Damages?"** .....
.
E. Brun, A. Mabondzo
E. Brun, *CEA Gif-sur-Yvette, F*

11.50 – 12.10 **"Role of Physicochemical Characteristics in the Uptake of TiO_2 Nanoparticles by Fibroplasts"** .....
Z. E. Allouni, P. J. Høl, M. A. Cauqui, N. R. Gjerdet, M. R. Cimpan
Z. E. Allouni, *University of Bergen, N*

12.10 – 12.30 **"Role of Cell Cycle on Nanoparticle Uptake"** .....
C. Aberg, J. A. Kim, A. Salvati, K. A. Dawson
C. Aberg, *University College Dublin, IRL*

12.30 – 13.30 Lunch

Session II:
Interactions of NPs with Biomolecules, Membranes and Cells – Part B

Chair: I. Hilger

13.30 – 14.30 **Plenary lecture II:**
"Making Nanomaterials Bio-Compatible".....
V. Colvin, *Rice University, Houston, TX, USA*

14.30 – 15.00 **"Quantitative Fluorescence Microscopy of Nanoparticles Interacting with Proteins and Cells" (Invited lecture)**.....
G. U. Nienhaus, *KIT Karlsruhe, D, and University of Illinois, Urbana, IL, USA*

15.00 – 15.30 Coffee Break

Chair: W. Kreyling

15.30 – 15.50 **"Nanosized CuO Changes the Fatty Acid Composition of Protozoan Membranes"** .....
M. Mortimer, K. Juganson, K. Kasemets, A. Kahru
M. Mortimer, *Laboratory of Molecular Genetics, Tallinn, EST*

15.50 – 16.10 **"Role of Hydrophilicity in the Interaction of Fibrinogen with SiO_2 Nanoparticles"** .....
A. Marucco, E. Carella, F. Turci, I. Fenoglio, B. Fubini, G. Ceccone, F. Rossi, L. O'Neill, H. J. Byrne
A. Marucco, *University of Torino, I*

16.10 – 16.30 **"Effect of Surface Modification of 5 nm Au Nanoparticles on the Composition of the Protein Corona Following Incubation with Mouse Serum or Brancheoalveolar Lavage Fluid"** .....
B. D. Johnston, M. Schäffler, C. Pfeiffer, A. Wenk, N. Haberl, S. Hirn, G. Pilar Riviera, J. M. Montenegro Martos, W. Parak, W. G. Kreyling
B. D. Johnston, *Helmholtz Center Munich, D*

16.30 – 17.00 **"Impact of Nanoparticles on Cellular Dynamics and Mechanics" (Invited lecture)** .....
A. Janshoff, *J. Rother, M. Tarantola, C. Rosman, C. Sönnichsen, Th. D. Schlad, W. Tremel*
A. Janshoff, *University of Göttingen, D*

17.00 – 17.20 **"A Biophysical Insight on Nanoparticle-Cell Interaction"** .....
P. C. Ke, R. Chen, T. Ratnikova, R. Schurr, E. Salonen, I. Vattulainen
P. C. Ke, *Clemson University, SC, USA*

17.20 – 17.40 **"Cellular Uptake of Nanoparticles Studied on an *in vitro* Co-Culture Model of the Alveolar Capillary Barrier"** .....
J. Kasper, M. I. Hermanns, C. Bantz, S. Utech, O. Koshkina, M. Maskos, R. E. Unger, C. J. Kirkpatrick
J. Kasper, *University Medical Center, Mainz, D*

17.40 – 18.10 **"Proteomic Profiling of the Nanoparticle/Protein Corona: A Critical Determinant of the Bio-Nano Response" (Invited lecture)**.....
R. Stauber, H. J. Galla, C. J. Kirkpatrick, M. Maskos
R. Stauber, *Mainz Screening Center, Mainz, D*

18.10 – 19.30 Dinner

19.30 – 21.30 **Poster Session I**.....
.

Tuesday, Sept. 13

Session III:
Biological Impacts of NPs – Part A

Chair: V. Stone

09.00 – 10.00 **Plenary lecture III:**
"Size Dependent Cytotoxicity of Ligand Stabilized Gold Nanoparticles".....
U. Simon, *RWTH Aachen University, D*

10.00 – 10.30 **"Bioactivity of Nanosilver: More Than a Simple Story" (Invited lecture)**
C. Greulich, M. Köller
C. Greulich, *University of Bochum, D*

10.30 – 10.50 **"Size-Dependent Cytotoxicity and Cellular Uptake of Tri-Block Copolymer Nanoparticles"** .....
S. Bhattacharjee, K. Fytianos, D. Ershov, J. van der Gucht, A. T. M. Marcelis, H. Zuilhof, I. M. C. M. Rietjens, G. M. Alink
S. Bhattacharjee, *Wageningen University, NL*

10.50 – 11.30 Coffee Break

11.30 – 11.50 **"Size Effect of Fluorescent Nanoparticles on Uptake by Macrophages and *in vitro* Toxicity"** .....
L. Leclerc, W. Rima, J. Pourchez, D. Boudard, V. Forest, V. Bin, P. Mowat, P. Perriat, P. Grosseau, D. Bernache-Assollant, M. Cottier
L. Leclerc, *Ecole Nationale Supérieure des Mines de Saint-Etienne, F*

11.50 – 12.10 **"Internalisation and Transcytosis of SiO_2 Nanoparticles by Lung Epithelial Cells" .**.....
S. Vranic, R. Guadagnini, K. Moreau, F. Marano,A. Baeza-Squiban, S. Boland
S. Vranic, *University Paris Diderot, F*

12.10 – 12.30 **"Cytotoxicity and Membrane Interactions of Amorphous Silica Nanoparticles"** .....
Q. Mu, N. S. Hondow, L. Krzeminski, A. P. Brown, K. L. M. White, N. N. Daskalakis, A. W. M. Hay, M. N. Routledge, L. J. C. Jeuken
Q. Mu, *University of Leeds, UK*

12.30 – 12.50 **"Inflammatory and DNA Damaging Properties of Nanoparticles in the Intestine"** .....
R. P. F. Schins, J. Kolling, A. W. Boots, D. van Berlo, I. Förster,C. Albrecht, K. Gerloff
R. P. F. Schins, *IUF Düsseldorf, D*

12.50 – 14.00 Lunch

Chair: G. Schmid

14.00 – 14.20 **"Assessment of the *in vitro* Toxicological Profile of Amorphous Silica Nanoparticles and Study of their Intracellular Fate"** .....
C. Uboldi, F. Broggi, G. Giudetti, J. Ponti, D. Gilliland, F. Rossi
C. Uboldi, *European Commission – JRC Ispra, I*

14.20 – 14.40 **"Nanoparticle Effects on Cell Survival, Function and Oxidative Stress *in vitro* and *in vivo*"** .....
B. K. Gaiser, A. Kermanizadeh, K. Fytianos, S. Hirn, A. Wenk, W. Kreyling, V. Stone
B. K. Gaiser, *Heriot-Watt University, Edinburgh, UK*

14.40 – 15.00 **"Mechanism of Long Term Toxicity of Functionalized Polystyrene Nanoparticles"** .....
C. Loos, G. U. Nienhaus, V. Mailänder, K. Landfester, Th. Simmet, T. Syrovets
C. Loos, *University of Ulm, D*

15.00 – 15.30 Coffee Break

Session IV:
Synthesis and Characterisation of NPs

15.30 – 16.30 **Plenary lecture IV:**
"Functional Nanoscale Particles from Polymers and Proteins".....
R. Nolte, *Radboud University Nijmegen, NL*

16.30 – 17.00 **"Ligand-Free Metal and Alloy Nanoparticles for Toxicological Studies" (Invited lecture)**.....
S. Barcikowski, *University of Duisburg-Essen, D*

17.00 – 17.20 **"Functionalization of Silica Nanoparticles for Physiological Media and Cells"** .....
C. Graf, Q. Gao, C. N. Noufele, W. Ruan, I. Schütz, V. Haucke, E. Rühl
C. Graf, *FU Berlin*, D

17.20 – 19.00 Free Time

19.00 - 23.00 Conference Dinner

Wednesday, Sept. 14

Session V:
Biological Impacts of NPs – Part B

Chair: P. Gehr

09.00 – 10.00 **Plenary lecture V:**
"New Materials with an Old Hazard: Nanofibres, Asbestos and the Pleura" .....
K. Donaldson, *University of Edinburgh, UK*

10.00 – 10.30 **"The Liver as Central Organ for the Uptake and Processing of Nanoparticles" (Invited lecture)**.....
P. Nielsen, A. Eychmüller, H. Weller, H. Hohenberg, J. Heeren
P. Nielsen, *University Hospital Hamburg-Eppendorf, D*

10.30 – 11.00 **"Particles in the Maze of the Gut" (Invited lecture)** .....
A. Frey, *Research Center Borstel, D*

11.00 – 11.30 Coffee Break

11.30 – 11.50 **"Dependence of Particle Size and Surface Charge on Biodistribution of Gold Nanoparticles after Intratracheal Instillation"** .....
S. Hirn, M. Semmler-Behnke, C. Schleh, A. Wenk, M. Schäffler, J. Lipka, B. D. Johnston, N. Haberl, S. Takenaka, N. G. Schmid, U. Simon, W. G. Kreyling
S. Hirn, *Helmholtz Center Munich, D*

11.50 – 12.10 **"Penetration and Storage of Nanoparticles in the Skin"** .....
J. Lademann, H. Richter, S. Schanzer, M. Meinke, W. Sterry, A. Patzelt
J. Lademann, *Charité Hospital Berlin, D*

12.10 – 12.30 **"Microvascular Distribution and Effects of Surface-Modified Quantum Dots in Postischemic Tissues"** .....
M. Rehberg, C. Ferreira-Leite, K. Mildner, J. Horstkotte, D. Zeuschner, F. Krombach
M. Rehberg, *Ludwig-Maximilians-University Munich, D*

12.30 – 12.50 **"Biological Impact of SiO_2 Nanoparticles on A549 Cells Exposed at the Air-Liquid Interface"** .....
A. Comouth, H. Saathoff, S. Diabate, A. Panas, H.-R. Paur, S. Mülhopt, C. Weiss
A. Comouth, *KIT Karlsruhe, D*

12.50 – 13.10 **"Cellular Reactivity of Carbon Nanotubes with Alveolar Epithelia and Macrophages: Importance of Physicochemistry"** .....
S. Sweeney, P. Ruenraroengsak, A. J. Thorley, D. Berhanu, E. Valsami-Jones, T. D. Tetley
S. Sweeney, *Imperial College London, UK*

13.10 – 13.30 **"Impact of Nanoparticles Accumulating in the Lysosome"**.....
A. Salvati, F. Wang, L. Yu, K. A. Dawson
A. Salvati, *University College Dublin, IRL*

13.30 – 14.30 Lunch

Chair: J. Lademann

14.30 – 15.30 **Plenary lecture VI:**
"Clinical MRI Cell Tracking Using Magnetic Nanoparticles: The First 5 Years".....
J. W. M. Bulte, *Johns Hopkins, Baltimore, MD, USA*

15.30 – 15.50 **"Interactions of Silica Nanoparticles with Lung Epithelial Cells: Cytotoxicity and Intracellular Uptake"** .....
H. Peuschel, S. Schübbe, C. Schumann, T. Müller, C. Cavelius, A. Kraegeloh
H. Peuschel, *INM Saarbrücken, D*

15.50 – 16.20 Coffee Break

Session VI:
Imaging and Diagnostics

16.20 – 16.50 **"Nanoparticles for Probing the pH in Intracellular Vesicles and Detection of Acidification of Endosomes" (Invited lecture)** .....
V. Mailänder, S. Lerch, K. Landfester
V. Mailänder, *Max-Planck-Institute for Polymer Research, Mainz, D*

16.50 – 17.10 **"Propidium Iodide Labelling of Nanoparticles as a Novel Tool for the Identification and Quantification of Cellular Binding and Uptake"** .....
N. Daum, A. Neumeyer, M. Bukowski, M. Veith, C. M. Lehr
N. Daum, *Helmholtz Institute for Pharmaceutical Research, Saarbrücken, D*

17.10 – 17.30 **"Localization of Nanoparticles Inside Cells: Application of High Resolution Fluorescence Microscopy"** .....
A. Kraegeloh, S. Schübbe, C. Schumann, T. Müller, H. Peuschel, M. Koch, C. Cavelius
A. Kraegeloh, INM Saarbrücken, D

17.30 - 17.50 **"Characterization of the Oxidative Properties of Nanoparticles by Electron Spin Resonance Spectroscopy"** .....
B. Hellack, C. Nickel, B. Stahlmecke, C. Albrecht, R. P. F. Schins, T. A. J. Kuhlbusch
B. Hellack, *IUTA Duisburg, D*

17.50 - 18.10 **"Quantification and 3D Reconstruction of Nanoparticle Uptake Events at the Single Cell Level"** .....
A. A. Torrano, J. Blechinger, C. Bräuchle
A. A. Torrano, *Ludwig-Maximilians-University, Munich, D*

18.10 – 18.40 **"Uptake of Functionalized Nanoparticles into Cells and Skin Probed by Spectroscopy, Microscopy and Tomography" (Invited lecture)**.....
C. Graf, J. Lademann, A. Vogt, M. Meinke, F. Rancan, A. Jordan, V. Haucke, A. D. Gruber, L. Mundhenk, E. Rühl
E. Rühl, FU Berlin, D

18.40 – 20.00 Dinner

20.00 – 22.00 **Poster Session II**.....

Thursday, Sept. 15

Session VII:
Assessment of NPs

Chair: H. R. Paur

09.00 – 10.00 **Plenary lecture VII:**
"Hazard Identification of Engineered Nanomaterials: Matter of Dosimetry".....
G. Oberdörster, *University of Rochester, NY, USA*

10.00 – 10.20 **"*In silico* Modelling of Biological Effects of Nanoparticles"**.....
D. Winkler, F. Burden, V. Epa, T. Le
D. Winkler, *CSIRO Clayton, AU*

10.20 – 10.40 **"Inlivetox: Design and Development of a Systemic Model for Nanotoxicity"** .....
N. Ucciferri, E. Collnot, M. Favre, B. Gaiser, S. Hirn, T. Sbrana, J. Susewind, A. Ahluwalia, W. G. Kreyling, C. M. Lehr, V. Stone, M. Liley
N. Ucciferri, *University of Pisa, I*

10.40 – 11.00 **"Metrics, Dose and Dose Concept: The Need for a Proper Dose Concept in Risk Assessment of Nanoparticles"** .....
M. Simko, *Austrian Academy of Sciences, Vienna, A*

11.00 – 11.30 Coffee Break

Chair: R. Zellner

11.30 - 13.00 **Conference Resumee and General Discussion**

13.00 - 14.00 Lunch

Adjourn

Poster Session I

I.34 "The Impact of Proteins on the Agglomeration Behavior of Colloids in Biological Media" .....
J. S. Gebauer, M. Malissek, S. Simon, W. Peukert, L. Treuel
J. S. Gebauer, *University of Duisburg-Essen, D*

I.35 "Protein Adsorption and Cell Uptake of Luminescent Nanoparticles" .....
St. Brandholt, R. M. Dörlich, P. Maffre, L. Shang, G. U. Nienhaus
St. Brandholt, *KIT Karlsruhe, D*

I.36 "Pulmonary Toxicity of Amorphous Silica Nanoparticles: A Comparison of Examination Methods" .....
S. Brill, L. Ma-Hock, M. Wiemann, W. Wohlleben, V. Strauss, S. Treumann, B. van Ravenzwaay, R. Landsiedel
S. Brill, *BASF, Ludwigshafen, D*

I.37 "Thirteen-Week Repeated Oral Toxicity Study of Zinc Oxide Nanoparticles in Sprague-Dawley Rats" .....
C. Jeong-Hwan, Y. Ji-Ran, K. Seung-Hyun, Y. Jung-Hee, C. Eun-Young, K. Yun-Soon, K. Euna, S. Seung Hyeok, K. Byeong-Cheol
C. Jeong-Hwan, *Seoul National University Hospital, Seoul, Korea*

I.38 "Release of silver ions from silver nanoparticles in different media".....
J. Diendorf, M. Epple
Joerg Diendorf University of Duisburg-Essen, Institute of Inorganic Chemistry

I.39 "Chemical composition of surface-functionalized gold nanoparticles".....
A. Rostek, D. Mahl, M. Epple
Alexander Rostek, University of Duisburg-Essen, Institute of Inorganic Chemistry

I.40 "Nanoparticles of silver, gold, and silver-gold (50:50) prepared in water by citrate reduction in the presence of tannin: Characterization and biological properties" .....
D. Mahl, J. Diendorf, S. Ristig, C. Greulich, Zi-An Li, M. Farle, M. Köller, and M. Epple
M. Epple, University of Duisburg-Essen, Institute of Inorganic Chemistry

Poster Session II

II.1 "Evaluating the Potential for a Variety of Nanofibres to Develop Genotoxicity in the Lung Using a 3D in vitro Model of the Human Epithelial Airway-Barrier" ....
M. J. D. Clift, C. A. Poland, R. Duffin, E. J. Foster, P. Wick, P. Gehr, C. Weder, R. P. F. Schins, B. Rothen-Rutishauser
B. Rothen-Rutishauser, *University of Fribourg, CH*

II.2 "Transport of Different-Sized Poly-(Hydroxypropylamine)-Coated Gold Nanoparticles across the Blood-Brain Barrier" .....
C. Freese, M. Gibson, H.-A. Klok, R. E. Unger, C. J. Kirkpatrick
C. Freese, *University Medical Center, Mainz, D*

II.3 "Silicon Nanocrystal's Potential Effective Mechanisms on Cells" .....
K. Fujioka, S. Hanada, K. Sato, K. Hirakuri, A. Shiohara, R. D. Tilley, Y. Manome, F. Kanaya, Y. Inoue, K. Yamamoto
K. Fujioka, *Jikei University School of Medicine, Tokyo, J*