



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

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 TiO₂ 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 TiO₂ Nanoparticles by Fibroblasts”**
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 SiO₂
Nanoparticles”**
A. Maruccio, E. Carella, F. Turci, I. Fenoglio, B. Fubini, G. Ceccone, F. Rossi, L. O’Neill, H.
J. Byrne
A. Maruccio, *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 Bronchoalveolar 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**.....

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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 SiO₂ 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
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- 11.00 – 11.30 Coffee Break
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- 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 SiO₂ 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. Ruenaroengsak, 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
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- 13.30 – 14.30 Lunch
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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*
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- 15.50 – 16.20 Coffee Break
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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.1 “Interactions of Janus Particles with Membranes and Cells from the Human Blood Compartment” (PARCEL-II)**
 I. Hilger, W. Tremel, C. Sönnichsen, A. Janshoff
I. Hilger, *Friedrich-Schiller-University Jena, D*
- I.2 “Probing Polymersome-Protein and -Cell Interactions: Structural Characterization and *in vitro* Studies”**
 R. Bleul, R. Thiermann, D. Bachran, M. Maskos
R. Bleul, *BMA Berlin, D*
- I.3 “Hepatic Processing and Biological Responses to Nanocrystals *in vivo*” (NANOFATE)**
 J. Heeren, A. Eychmüller, P. Nielsen
J. Heeren, *University Hospital Hamburg-Eppendorf, D*
- I.4 “Nanoparticles in Whole Blood: A Versatile Screening Platform”**
 D. Baumann, D. Hofmann, K. Landfester, V. Mailänder
D. Baumann, D. Hofmann, *Max Planck Institute for Polymer Research, Mainz, D*
- I.5 “Bioactivity and Cellular Uptake of Distinct Nanoparticles in Human Endothelial Cells” (NPBIOMEM)**
 A. Wixforth, Ch. Bräuchle, A. Reller, I. Hilger
A. Wixforth, *University of Augsburg, D*
- I.6 “Modification of Nanoparticles by Intestinal Constituents”**
 S. Bade, N. Röckendorf, A. Musyanovych, K. Landfester, J. Dimitrijevic, T. Vossmeier, H. Weller, A. Frey
A. Frey, *Research Center Borstel, D*
- I.7 “Tailored Silver Nanoparticles in Biological Environments: Interactions with Biomolecules and Cells” (Nano-ag)**
 M. Eppe, M. Köller, L. Treuel, R. Zellner
M. Eppe, *University of Duisburg-Essen, D*
- I.8 “DNA-Damaging Properties of Platinum Nanoparticles”**
 H. Gehrke, J. Pelka, G. C. Hartinger, H. Blank, D. Gerthsen, D. Marko
H. Gehrke, *University of Vienna, A*
- I.9 “How Particles Enter the Body: Investigating Particle-Barrier Interactions in the Digestive Tract” (PARENTRY)**
 A. Gebert, A. Frey, G. Hüttmann, H. Weller
A. Gebert, *University of Jena, D*
- I.10 “Comparison of Transfection and Cellular Internalisation of Anionic and Cationic Lipid Gene Delivery Vectors in the Presence of Calcium”**
 L. Kudsiova, K. Y. Young, K. Welser, F. Campbell, A. Mohammadi, A. D. Tagalakis, G. Kenny, S. L. Hart, H. C. Hailes, A. B. Tabor, M. J. Lawrence
L. Kudsiova, *King’s College London, UK*
- I.11 “Biological Influence of Nanoparticles on Exposed Epithelial Respiratory Surfaces” (BIONEERS-2)**
 R. Stauber, H.-J. Galla, C.J. Kirkpatrick, M. Maskos
R. Stauber, *University Medical Center, Mainz, D*

- I.12 “Characterization of Protein Adsorption onto FePt Nanoparticles Using Dual-Focus Fluorescence Correlation Spectroscopy”**
P. Maffre, K. Nienhaus, F. Amin, W. J. Parak, G. U. Nienhaus
P. Maffre, KIT Karlsruhe, D
- I.13 “Health Effects of Manufactured Nanoparticles: Molecular and Cellular Biology and Toxicology” (NanoBioTox)**
G. U. Nienhaus, P. Gehr, B. Rothen-Rutishauser, W. G. Kreyling, C. Schleh, Neuherberg, W. Parak, P. Rivera Gil
G. U. Nienhaus, KIT Karlsruhe, D
- I.14 “NANO-SYNCC: Synthesis, Characterisation, and Cellular Effects of Nanoparticles – a Summary”**
S. Mühlhopt, H. Mätzing, H. Saathoff, C. Comouth, S. Diabaté, A. Panas, C. Weiss, O. Nalcaci, H. Bockhorn, H.-R. Paur
S. Mühlhopt, KIT Karlsruhe, D
- I.15 “Nanoparticles Containing Selective Probes: Interaction Mechanisms of NPs with Cell Membranes, Intracellular Uptake, and Transport”(NANO-SELECT)**
E. Rühl, Ch. Graf, J. Lademann, A. Vogt, A. Jordan, A. Gruber
E. Rühl, FU Berlin, D
- I.16 “Toxicity Assessment of Boehmite Nanoparticles: Adsorption Artefacts on Biological Responses on TNF- α Biomolecule *in vitro* Production”**
M. Pailleux, J. Pourchez, D. Boudard, P. Grosseau, M. Cottier
M. Pailleux, Ecole Nationale Supérieure des Mines de Saint-Etienne, F
- I.17 “Influence of Functionalized Polymeric Nanoparticles of Different Size, Material, and Functionalization on Differentiation, Inflammation, Proliferation, Apoptosis and Interaction with Cellular Compartments and Proteins” (NanoCellInteract)**
K. Landfester, G. U. Nienhaus, Th. Simmet, V. Mailänder
K. Landfester, MPI for Polymer Research, Mainz, D
- I.18 “Nanoparticles on Skin: Destabilisation or Translocation and Cellular Uptake?”**.
F. Rancan, S. Hadam, S. Amselgruber, Z. Afraz, Q. Gao, S. Munier, C. Graf, B. Verrier, E. Rühl, A. Vogt
F. Rancan, Charité Hospital Berlin, D
- I.19 “Influence of Metal and Alloy NPs on Germ Cell Function and Embryo Development” (REPROTOX)**
St. Barcikowski, D. Rath, W. Kues
St. Barcikowski, University of Duisburg-Essen, D
- I.20 “Bio-Nano Interactions in the Peripheral Lungs are Triggered by Surfactant Protein A”**
Ch. A. Ruge, U. F. Schäfer, J. Kirch, M. Schneider, O. Cañadas, J. Perez-Gil, C. Casals, C.-M. Lehr
Ch. A. Ruge, Saarland University, D
- I.21 “Nanoparticles-Protein Corona Complex and Nanoparticles Behaviour”**
U. Sakulkhu, G. Coullerez, J. Salaklang, A. Fink, H. Hofmann
U. Sakulkhu, EPFL Lausanne, CH
- I.22 “Protein Interaction with Different Sized Gold Nanoparticles”**
M. Schäffler, M. Semmler-Behnke, A. Wenk, C. Schleh, B. D. Johnston, S. Hirn, N. Haberl, W. G. Kreyling
M. Schäffler, Helmholtz Center, Munich, D

- I.23 “Adsorption of Model Proteins and Physiologically most Relevant SP-A to Metal Oxide Nanoparticles”**
Ch. Schulze, Ch. Ruge, W. Wohlleben, U. F. Schaefer, C.-M. Lehr
Ch. Schulze, Saarland University, D
- I.24 “Protein Adsorption-Induced Effects on the Luminescence Properties of Gold Nanoclusters”**
L. Shang, G. U. Nienhaus
L. Shang, KIT Karlsruhe, D
- I.25 “Membrane Reactivity of Silica Nanomaterials. A Study on Human Blood Cell Membranes”**
J. Shi, T. Burks, M. Saleemi, A. Uheida, H. Karlsson, L. Möller
J. Shi, Karolinska Institutet, Huddinge, S
- I.26 “Size-Dependent Cytotoxicity and No-Clathrin Mediated Uptake of Gold Nanoparticles in Balb 3T3”**
R. Coradeghini, S. Gioria, P. Nativo, F. Franchini, J. Ponti, D. Gilliland, F. Rossi
R. Coradeghini, European Commission - Joint Research Centre, Ispra, I
- I.27 “Studying the Protein Corona of Nanoparticles: *In situ* Characterization and Correlation to Cellular Responses *in vitro*”**
M. D. Driessen, W. Wohlleben, Ch. Schulze, J. Schnekenburger, C.-M. Lehr, A. Luch, A. Haase
M. D. Driessen, German Federal Institute for Risk Assessment Berlin, D
- I.28 “Inorganic Janus Particles: Menace or Opportunity?”**
J. Rother, A. Janshoff
J. Rother, University of Göttingen, D
- I.29 “Exposure of A549 Cells to SiO₂ Nanoparticles under Submerged Conditions and at the Air-Liquid Interphase”**
A. Panas, S. Diabaté, A. Comouth, H. Saathoff, H.-R. Paur, S. Mülhopt, C. Weiss
S. Diabaté, KIT Karlsruhe, D
- I.30 “A Co-Culture System to Study the Intercellular Transfer of TiO₂ NPs and Endosomal Organelles”**
J. Schoelermann, Z. E. Allouni, H.-H. Gerdes, M. R. Cimpan
J. Schoelermann, University of Bergen, N
- I.31 “Comparison of the Cytotoxicity of Different Engineered Nanoparticles in Lung Epithelial Cells: Role of Physico-Chemical Characteristics”**
S. Vranic, K. Moreau, R. Guadagnini, F. Marano, A. Baeza-Squiban, S. Boland
A. Baeza-Squiban, University Paris Diderot, F
- I.32 “Health Related Effects of Nanomaterials”**
H. Becker, M. Kolossa, W. Kreyling, M. Semmler-Behnke
H. Becker, Federal Environment Agency, Berlin, D
- I.33 “Interactions of Nanoparticles with Proteins – Adsorption Equilibria and Impact on the Structural Integrity of the Protein”**
M. Malissek, S. Simon, C. Damm, J. Diendorf, D. Mahl, W. Meyer-Zaika, M. Epple, R. Zellner, W. Peukert, L. Treuel
M. Malissek, University of Duisburg-Essen, D

- 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

- II.4 “The Effect of Nanoparticles on Glutathione Depletion and Apoptosis in Human Hepatocytes”**
K. Fytianos, B. K. Gaiser, V. Stone
K. Fytianos, *Heriot-Watt University Edinburgh, UK*
- II.5 “Differences in Uptake and Toxicity of Similar-Sized Ag NPs in Daphnia Magna”**
A. Georgantzopoulou, Y. L. Balachandran, P. Rosenkranz, M. Dusinska, M. Kruszewski, A. Lankoff, J.-N. Audinot, L. Hoffmann, A. C. Gutleb
A. Georgantzopoulou, *Centre de Recherche Public-Gabriel Lippmann Belvaux, L*
- II.6 “Effects of Short-Term Inhalation Exposures to Carbon Nanoparticles in the Mouse Lung and Brain”**
C. Albrecht, M. Hullmann, D. van Berlo, A. Wessels, F. R. Cassee, M. E. Gerlofs-Nijland, R. P. F. Schins
C. Albrecht, *IUF Düsseldorf, D*
- II.7 “Biological Responses Induced in Bronchial Epithelial Cells by Carbon Black and Titanium Dioxide Nanoparticles: Similar Outcomes but Distinct Molecular Pathways”**
H. Salik, S. Val, A. Baeza-Squiban, K. Andreau, F. Marano, S. Boland
S. Boland, *University Paris Diderot, F*
- II.8 “Nanofate. Uptake, Metabolism and Toxicity of Superparamagnetic Iron Oxide Nanoparticles (SPIOs) in Mouse Macrophages”**
A. Giemsa, B. Freund, E. Pösel, H. Hendrik, H. Hohenberg, P. Nielsen
A. Giemsa, *University Hospital Hamburg- Eppendorf, D*
- II.9 “Differential Response of Peripheral Blood Mononuclear Cells to Nano-Silver”** ...
C. Greulich, J. Diendorf, T. A. Schildhauer, M. Epple, M. Köller
C. Greulich, *Ruhr University Bochum, D*
- II.10 “Interaction of Nanoparticles Used in Medical Applications with Lung Epithelial Cells: Uptake, Cytotoxicity, Genotoxicity, Oxidative Stress and Pro-Inflammatory Response”**
R. Guadagnini, K. Moreau, S. Vranic, S. Hussain, F. Busi, A. Baeza-Squiban, F. Marano, S. Boland
R. Guadagnini, *University Paris Diderot, F*
- II.11 “Establishing a System to Investigate the Toxicity of Silver Nanoparticles”**
N. Haberl, E. Richter, A. Wenk, J. Diendorf, M. Epple, S. Hirn, B. D. Johnston, M. Schäffler, W. G. Kreyling, C. Schleh
N. Haberl, *Helmholtz Center Munich, D*
- II.12 “Ion and pH Sensing with Colloidal Nanoparticles: The Influence of Surface Charge on Sensing Properties”**
D. Huehn, A. Faheem, J.-M. Montenegro, W. J. Parak
D. Huehn, *Philipps University Marburg, D*
- II.13 “Influence of Surface Charge of Iron Oxide Nanoparticles on their Internalization, Oxidative Stress and Cytotoxicity”**
P. Hugouenq, S. Boland, C. Wilhelm, F. Gazeau, A. Baeza, R. Bazzi, V. Cabuil
P. Hugouenq, *Université Pierre et Marie Curie, Paris, F*
- II.14 “Assessing the Toxicological Impact of a Panel of Engineered Nanomaterials for Risk Assessment Purposes”**
A. Kermanizadeh, B. J. Gaiser, V. Stone
A. Kermanizadeh, *Heriot-Watt University Edinburgh, UK*

- II.15 “Synthesis and Luminescence Properties of Rare-Earth-Doped Zirconia Nanoparticles”**
S. Kluge, H. Wiggers, T. Dreier, C. Schulz
S. Kluge, *University of Duisburg-Essen, D*
- II.16 “Synthesis and Characterization of Siloxane Based Nanoparticles for *in vitro* Studies”**
O. Koshkina, Ch. Bantz, H.-J. Galla, R. K. Harishchandra, C. J. Kirkpatrick, M. I. Hermanns, J. Kasper, R. H. Stauber, D. Docter, M. Maskos
O. Koshinka, *BAM Berlin, D*
- II.17 “Fluorescent Gold Nanoclusters: A New Promising Probe to Label Human Transferrin”**
X. Le Guével, N. Daum, M. Schneider
X. Le Guével, *Saarland University, D*
- II.18 “Quantum Dot and Zinc Oxide Nanoparticles Induced Pulmonary Responses in Mouse Lung and Cultivated Cells: Effects of Chemical Components and Size”**...
P. Lin, H. Chang, C.-C. Ho, C. S. Yang
P. Lin, *National Health Research Institutes, Zhunan, Taiwan*
- II.19 “Retention, Degradation and Excretion of Radiolabeled Nanocrystals”**
D. Luther, B. Freund, A. Giemsa, J. Heeren, P. Nielsen
P. Nielsen, *University Hospital Hamburg-Eppendorf, D*
- II.20 “Next Generation Sequencing Technology as Platform for Risk Assessment of Nanomaterials”**
K. Reutlinger, M. Hampel, K. Sohn, T. Hirth, H. Walles
K. Reutlinger, *Fraunhofer Institute, Stuttgart, D*
- II.21 “Size and Zeta Potential Measurements with an Electrophoretic Video Microscope”**
D. Hagemeyer, *Microtrac Europe GmbH, Meerbusch, D*
- II.22 “Synthesis and Characterization of Fluorescent Metal Oxide Nanoparticles”**
R. Herrmann, A. Reller
R. Herrmann, *University of Augsburg, D*
- II.23 “Single Particle Imaging by Two-Photon Microscopy *in vivo*”**
L. Krapf, J. Dimitrijevic, A. Schüth, T. Vossmeier, A. Gebert, H. Weller, G. Hüttmann
L. Krapf, *University of Lübeck, D*
- II.24 “Evaluation of Stability and Penetration Effects of Nano Transporters in the Skin Using Electron Paramagnetic Resonance Spectroscopy”**
M. C. Meinke, S. F. Haag, M. Chen, A. Fahr, R. Bittl, C. Teutloff, E. Fleige, R. Haag, D. Peters, C. Keck, J. Lademann
M. C. Meinke, *Charité Hospital Berlin, D*
- II.25 “Synthesis and Characterization of Selective Sensor Nanoparticles for Magnetic Resonance Imaging”**
D. Nordmeyer, P. Stumpf, D. Gröger, F. Paulus, R. Haag, A. Semisch, C. Richter, A. Hartwig, J. Denedde, R. Malz, U. Rauch-Kroehnert, J. Schnorr, I. Gemeinhardt, M. Taupitz, C. Graf, E. Rühl
D. Nordmeyer, *Free University Berlin, D*

- II.26 “Tracking the Properties of Released and As-Tested Nanomaterials for Risk Assessment”**
 W. Wohlleben, R. Landsiedel, K. Wiench
W. Wohlleben, BASF Ludwigshafen, D
- II.27 “A Portable Nanoparticle Monitor and Sampler for Detailed Workplace Exposure Assessment”**
 Ch. Asbach, H. Kaminski, N. Azong-Wara, B. Stahlmecke, H. Fissan, Th. A. J. Kuhlbusch, D. Broßell, H.-G. Horn
Ch. Asbach, IUTA Duisburg, D
- II.28 “Development and Experimental Evaluation of a New (Nano)Particle Thermophoretic Personal Sampler”**
 N. Azong-Wara, Ch. Asbach, B. Stahlmecke, H. Fissan, H. Kaminski, S. Plitzko, D. Bathen, Th. A. J. Kuhlbusch
N. Azong-Wara, IUTA Duisburg, D
- II.29 “Mobility of Three Different TiO₂ Nanomaterials in Soil Columns”**
 C. Nickel, B. Hellack, N. Henny, L. Erdinger, S. Gabsch, M. Stintz, Th. A. J. Kuhlbusch
C. Nickel, IUTA Duisburg, D
- II.30 “pH-sensitive Capsules as Intracellular Optical Reporters for Monitoring the Lysosomal pH Upon Stimulation”**
 M. Nazareus, P. Rivera-Gil, S. Ashraf, W. Parak
M. Nazareus, Philipps-University Marburg, D
- II.31 “Nanoparticle-Induced Cytotoxicity and Cytokine Expression in Human Lung Cells”**
 E.-M. Prantl, St. Lehr, S. Kluge, H. Wiggers, Ch. Schulz, Th. Kuhlbusch, R. Schins, B. Hellack, M. Pink, S. Schmitz-Spanke, E. Dopp
E.-M. Prantl, University Hospital Essen, D
- II.32 “Silica Nanoparticle-Based Intracellular Diagnostics”**
 B. Korzeniowska, J. Decourcey, D. Wencel, R. Woolley, C. Loscher, B. D. MacCraith, C. McDonagh
B. Korzeniowska, School of Physical Sciences, Dublin, IRL
- II.33 “A Novel Active Bionanocomposite Film Incorporating Rosemary Essential Oil and Nanoclay into Chitosan”**
 M. Rezaei, M. Abdollahi, G. Farzi
M. Rezaei, Tarbiat Modares University, Noor, IR
- II.34 “nanoGEM – A German Initiative for Integrative Research Towards Risk Assessment for Nanomaterials”**
 Th. A.J. Kuhlbusch and the NanoGEM Consortium
Th. A. J. Kuhlbusch, IUTA, Duisburg, D
- II.35 “Application of Polyurethane Foam Containing Silver Zeolite (Zeomic) in Water Filtration System for Infection Control of *Streptococcus Iniae* in Rainbow Trout”**
 M. R. Kalbassi, A. Shahim, M. Soltani, S. A. Johari
M. R. Kalbassi, University of Tarbiat Modares, IR
- II.36 “Toxicity of Silver Nanoparticles in Aquatic Ecosystems: Salinity as the Main Cause of Reducing Toxicity”**
 M. R. Kalbassi, H. S. Joo, S. A. Johari
M. R. Kalbassi, University of Tarbiat Modares, IR

- II.37 “Acute Effects of Micro and Nano Silver Particles on Alevin and Juvenile Rainbow Trout (*Oncorhynchus mykiss*)”**
M. R. Kalbassi, S. A. Johari, M. Soltani
M. R. Kalbassi, *University of Tarbiat Modares, IR*
- II.38 “Multifunctional Janus Particles”**
I. Schick, H. Bauer, O. Köhler, A. Schilmann, B. Nakhjavan, J. K. Sahoo, T. D. Schladt, W. Tremel
I. Schik, *University of Mainz, D*
- II.39 “Multifunctional Nanoparticles”**
A. Schilmann, I. Schick, H. Bauer, W. Tremel
A. Schilmann, *University of Mainz, D*
- II.40 “Reference Nanomaterial for Toxicological Studies: on the Pathway to well defined non-interacting Hybrids”**
G. Orts-Gil, K. Natte, W. Österle
G. Orts-Gil, *BAM Federal Institute for Materials Research and Testing, Berlin, D*