3-rd International Youth Conference "Interdisciplinary Problems of Nanotechnology, Biomedicine and Nanotoxicology" May 21-22, 2015, Tambov, Russia

photo report

The Organizing Committee would like to acknowledge the sponsor support from OOO «NanoBioTech» and Students R&D Department of TSU.
The Conference is partially supported by Russian Foundation for Basic Research (Project №15-34-10118), Russian Science Foundation (Project № 15-19-00181) and Agreement № 14.578.21.0080 (28.11.2014)

Geography of the Conference

25 speakers from Russia (Tambov, Moscow, Ryazan, St.-Petersburg, Kazan, Tomsk, 84 %) Norway (Oslo, 12 %), and Germany (Aachen, 4%)

Total 60 participators, including:
>50 % of young scientists, students and PhD students

Conference venue –
The Center for Nanotechnologies and Nanomaterials of Tambov Derzhavin State University

Opening speech

Prof. Pavel Kashkarov, NRC «Kurchatov Institute», Moscow, Russia

Prof. Yuri Golovin, Tambov Derzhavin State University, Tambov, Russia

Plenary Reports

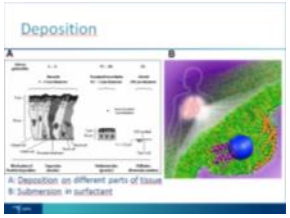
Effects of nanoparticles on health: lessons to be learned from studies of ambient particles

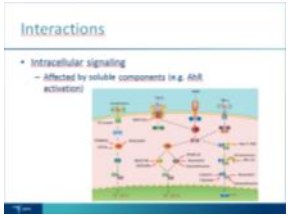
Prof. Per Schwarze,
Norwegian Institute of Public Health (NIPH), Oslo, Norway
per.schwarze@fhi.no

"

Exposure to engineered nanoparticles will always be accompanied by exposure to ultrafines.

"





Plenary Reports

Nanomaterials in consumer's goods: the problems of safety and regulation

Prof. Ivan Gmoshinski,
Federal State Budgetary Institution "Institute of Nutrition", Moscow, Russia
gmosh@ion.ru

“

Distribution of publications on studied nanomaterials species is not correlated with the volume of their production in the world, and the practical significance.

”

Plenary Reports

Magneto-mechanical paradigm and some models for the drug delivery and controlled release in low-frequency non-heating magnetic field

Prof. Yuri Golovin, Tambov Derzhavin State University, Tambov, Russia;

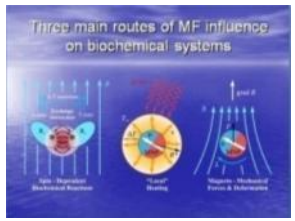
S. L. Gribanovsky, D. Yu. Golovin, N. L. Klyachko, A. G. Majouga, M. Sokolsky-Papkov, A. V. Kabanov

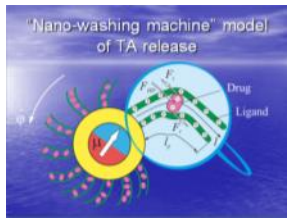
golovin@tsu.tmb.ru

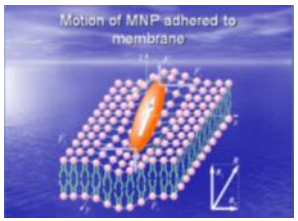
“

Actuation of MNPs by low frequency non-heating AC MF has a lot of advantages: multimodality, selectivity, molecule locality, easy administration and control, no overdose hazard.

”







Plenary Reports

Nanotechnological approaches for veterinary immunodiagnostics

Prof. Sergey Kondakov, National University of Science and Technology (MISIS), Moscow, Russia

ksekse@mail.ru

“

Advantages of the technology Dried Blood Spot (DBS): the minimum amount of sample to be analyzed; decrease in injuries to the patient; lack of cold chain during transport of biological fluids.

”

Application of nanotechnology in biomedicine, agriculture and ecology

The antibacterial efficiency of polydisperse colloidal systems of nanoparticles of metals and metal oxides – a promising way of combating antibiotic resistance in the treatment of local infectious processes

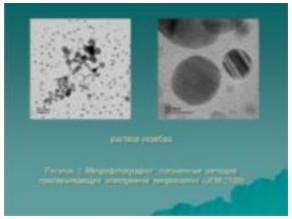
Yakov Karasenkov, OOO "MK ROSDENT", Moscow, Russia

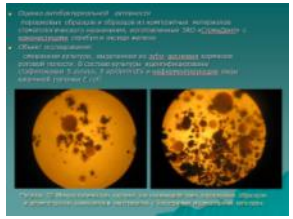
rosdent@mail.ru

“

Relevant research is related to the prospects of using of colloidal solutions of metal nanoparticles as an antibacterial component in dental restorative materials.

”





Application of nanotechnology in biomedicine, agriculture and ecology

Biodegradation of multiwalled carbon nanotubes in the gastro-intestinal tract of animals: is it really possible?

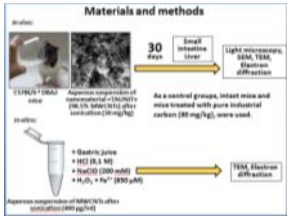
Alexander Masyutin, M.V. Lomonosov Moscow State University, Department of Biology, Moscow, Russia

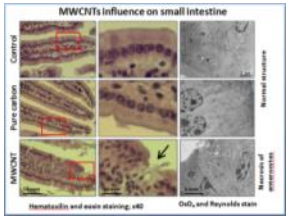
squiggoth@yandex.ru

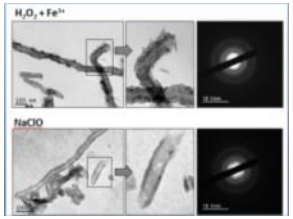
“

Tubular nanoparticles, similar to nanotubes were found in small intestine and liver of mice after peroral administration.

”







Application of nanotechnology in biomedicine, agriculture and ecology

Discovery of Extremely Low Level of Ag Nanoparticle Excretion from Mice Brain in Experiments *in vivo*

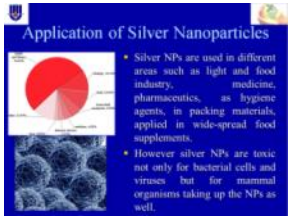
Anna Antsiferova, NRC «Kurchatov Institute», Moscow, Russia

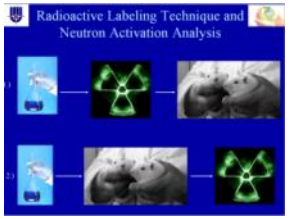
Antsiferova_AA@nrcki.ru

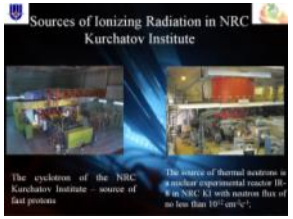
"

Nuclear-Physical techniques promise to be top techniques for certification of nanomaterials due to their high sensitivity and integrity.

"







Application of nanotechnology in biomedicine, agriculture and ecology

Radioactive Indicators Method to Measure Amount of Inorganic Nanoparticles in Biological Samples

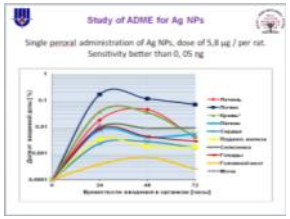
Yuri Buzulukov, NRC "Kurchatov Institute", Moscow, Russia

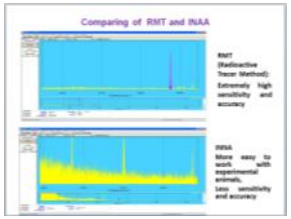
buzulukov@inbox.ru

"

Radioactive Tracer Method offers extremely high sensitivity and accuracy; Instrumental neutron activation analysis more easy to work with experimental animals, but less sensitivity and accuracy.

"





Application of nanotechnology in biomedicine, agriculture and ecology

Using Graphene-Modified Sodium Acetate for Physiotherapy in Medicine

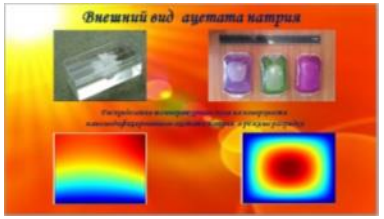
Alena Popova, Tambov State Technical University, Tambov, Russia

barbie1512@mail.ru

"

It is possible to increase efficiency of thermal accumulators for medical purpose by phase change materials modifying by graphene.

"



Application of nanotechnology in biomedicine, agriculture and ecology

Biological active nanoparticles in cattle breeding

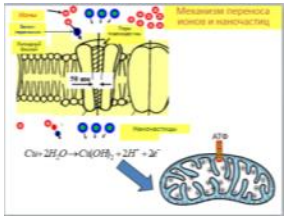
Prof. Svetlana Polischuk, P.A. Kostychev Ryazan State Agrotechnological University, Ryazan, Russia

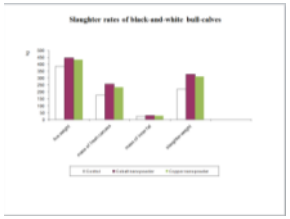
svpolishuk@mail.ru

"

Of course there exist many questions to be answered but the experience we have got makes it possible to justify the use of nano-materials as perspective drugs stimulating the development of living systems.

"





Application of nanotechnology in biomedicine, agriculture and ecology

Application of superdispersed metallic powders in agrotechnology

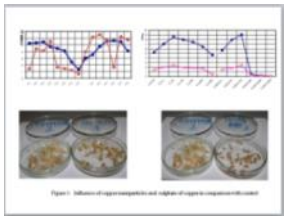
Prof. Gennady Churilov, I.P. Pavlov Ryazan State Medical University, Ryazan, Russia

genchurilov@yandex.ru

"

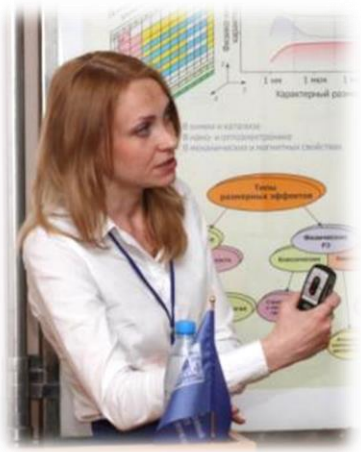
We have demonstrated the nanopowders high efficiency as growth stimulators by the example of such crops as rape and wild mustard.

"



Application of nanotechnology in biomedicine, agriculture and ecology

Bioconversion of micro- and nanodispersed metallurgical wastes



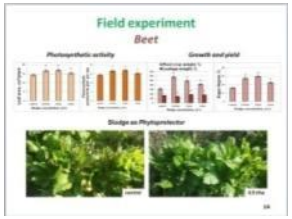
Olga Zakharova, Tambov Derzhavin State University, Tambov, Russia

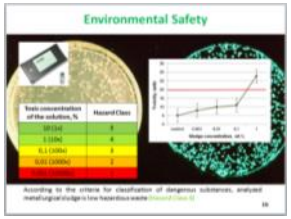
olgazakharova1@mail.ru

“

Based on our results, we recommend further research to develop technologies of metallurgical sludge as fertilizer for spring rape, sugar beet and flax seed.

”





Application of nanotechnology in biomedicine, agriculture and ecology

Studies of nanoparticles safety in RIHOPHE

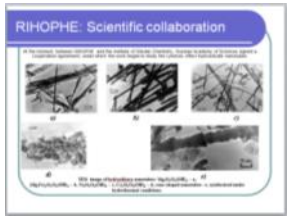
Angela Glushkova, RIHOPHE, St.-Petersburg, Russia

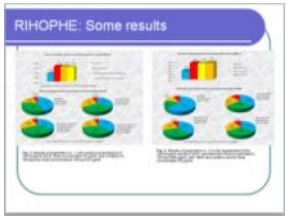
aglushkova_rihope@hotmail.com

"

SiO_2 nanoparticles in high concentrations may have possible carcinogenic activity, although additional tests are to perform.

"





Nanotoxicology

Occupational safety at nanotechnological manufacturing sites

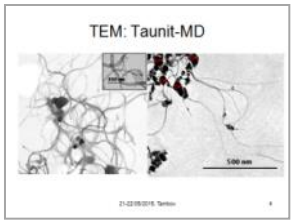
Prof. Liliya Fatkhutdinova, Kazan State Medical University, Kazan, Russia

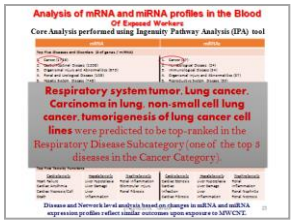
liliya.fatkhutdinova@gmail.com

"

Existing health and safety regulation does not take into account specific features of nanoindustry and thus does not provide proper safety for workers.

"





Nanotoxicology

Mechanisms of nanoparticles in lung cell pro-inflammatory responses

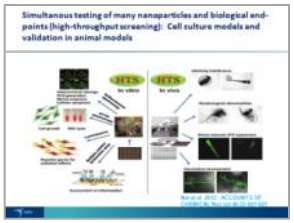
“

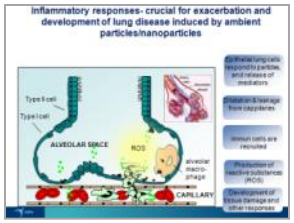
The cytokine responses seemed to be independent of uptake of the NP in the epithelial lung cells.

”

Prof. Marit Låg, Norwegian Institute of Public Health, Oslo , Norway

Marit.Lag@fhi.no





Prof. Magne Refsnes, Norwegian Institute of Public Health, Oslo , Norway

Marit.Lag@fhi.no

Nanotoxicology

In vitro toxicity of the multi-walled carbon nanotubes

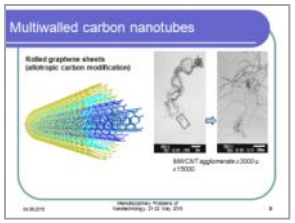
"

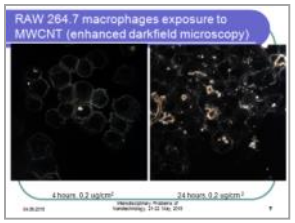
MWCNTs were less cytotoxic compared to SWCNTs, but had a damaging effect on the cellular membrane.

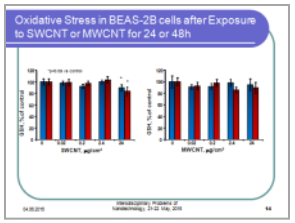
"

Timur Khaliullin, Kazan State Medical University, Kazan, Russia

khaliullin.40k@gmail.com







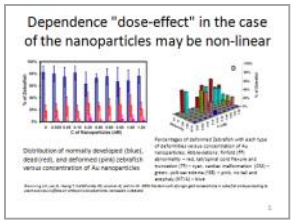
Nanotoxicology

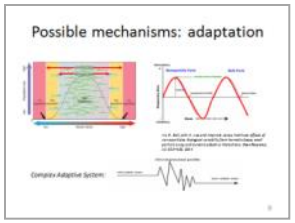
Low-dose effects in nanotoxicology: theory and practice

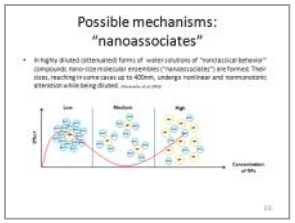
Alexander Gusev, Tambov Derzhavin State University, Tambov, Russia

nanosecurity@mail.ru

> “
>
> Perhaps "nanosubstances" can work "at the bottom", i.e. at concentrations that are inert to substances in other forms.
>
> ”







Nanotoxicology

Evaluation of the toxicity of multi-walled carbon nanotubes and their potential population and ecological effects in mouse-like rodents

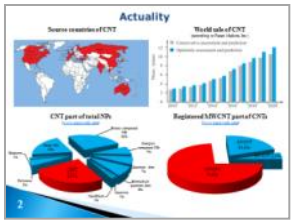
Inna Vasyukova, Tambov Derzhavin State University, Tambov, Russia

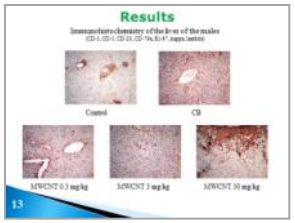
inok_tambov@mail.ru

“

Dose-dependent decrease of males fertilizing capability index was determined: in MWCNT30 mg/kg exposed group this index was decreased by 40.4 %.

”





Nanotoxicology

Solutions for experimental studies of nanoparticles effects on living organisms

Lucia Bustin, TSI GmbH, Germany

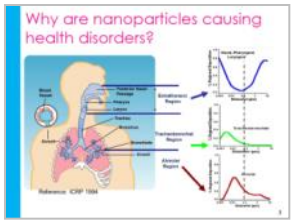
lucia.bustin@tsi.com

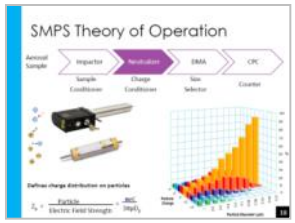
Online report

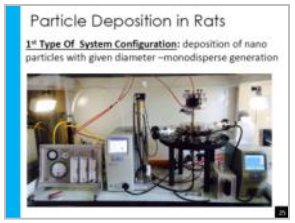
“

Only direct measurement of Aerodynamic Diameter eliminates assumptions of particle shape & density.

”







Nanotoxicology

Properties of nanoparticles dispersions in surface water and simulated biological solutions

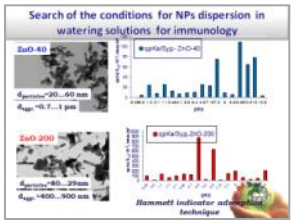
Anna Godymchuk, National Research Tomsk Polytechnic University, Tomsk, Russia

godymchuk@mail.ru

"

It is almost impossible to predict the impact of stabilizers on small particles without some experimental investigation of the state of their surface.

"



Nanotoxicology

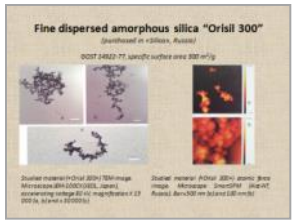
Interaction of engineered nanoparticles with toxic and essential trace elements

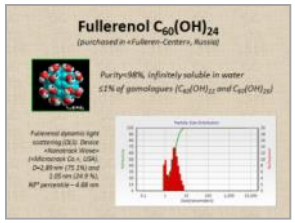
Antonina Shumakova,
Federal State Budgetary Institution "Institute of Nutrition", Moscow, Russia
antonina_sh@list.ru

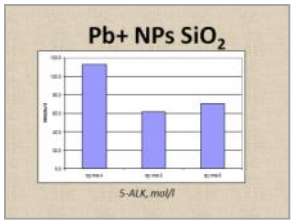
"

The fact is noticeable that in many cases the effects of NPs appear to be without dose dependence i.e. pronounced at low unlike high doses.

"







Nanotoxicology

Risk evaluation of silver nanoparticles in foods

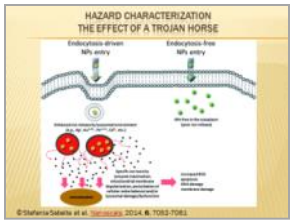
Vladimir Shipelin, Federal State Budgetary Institution "Institute of Nutrition", Moscow, Russia

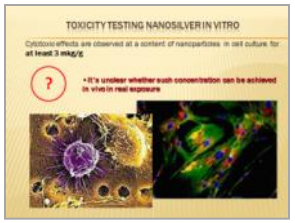
v.shipelin@ya.ru

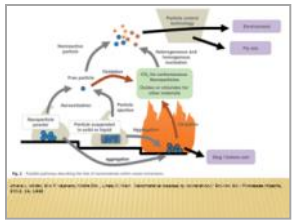
“

Various forms of nano-sized colloidal silver are the most widely used in consumer products far superior in this regard to all other types of mineral engineered nanomaterials.

”







Nanotoxicology

Polylactide/Hydroxyapatite composite as a material for 3D-printing of porous scaffolds for tissue engineering

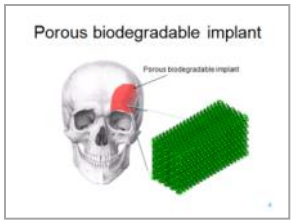
Kirill Nyaza, National University of Science and Technology (MISIS), Moscow, Russia

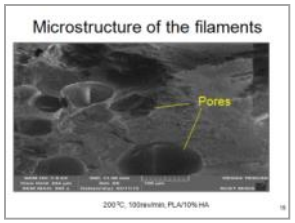
mobiad@yandex.ru

"

The obtained bioactive polymer filament allows to print medical devices by fusing layering .

"





Discussion club «Nanosafety». Summing up and closing of the conference






RESOLUTION

1. During the conference were found ways to address goals and objectives, in this connection, the conference should be considered a success.
2. There should be close cooperation between Russian and foreign research groups to address cross-cutting issues in the field of nanotechnology and nanotoxicology. Conference participants recognized the desirability of creating a society nanotoxicology, both in the domestic and in the international format.
3. It is necessary to conduct a large-scale conference on nanosafety with leading scientists, government officials and the business community for the organization of major projects funded in nanotoxicology.
4. It is necessary to develop proposals for the introduction of direction "nanotoxicology" in existing classifications, the alternative proposal is the development of this direction in the framework of the existing critical technologies of the Russian Federation.
5. In the future, take steps to expand the format "nanosafety" to "sustainable nanotechnology» («sustainable nanotechnology»).
6. Unify terminology in nanotoxicological research.

Also it were…

…Excursions, Dinner, Walks

Thank you for active participation…

…and welcome to 4-th International Conference «Interdisciplinary Problems of Nanotechnology, Biomedicine and Nanotoxicology», 2016!