



Capacities/Research Potential  
FP7-REGPOT-2009-1

Project No. 245916

# NANOTECH-FTM

Reinforcing of Nanotechnology and Functional Materials Centre

## FINAL PROJECT REPORT

Months 1 - 36

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## 1. Publishable summary

### NANOTECH FTM – FP7 REGPOT-2009-1 project

NANOTECH FTM – Progress report for months 1-36

*Reporting period: 01.01.2010 – 31.12.2012*

**Contractor:**

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**Project coordinator:**

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NANOTECH FTM is an acronym of the project fully titled “Reinforcing of Nanotechnology and Functional Materials Centre” at the Faculty of Technology and Metallurgy University of Belgrade. The main objectives of this project were to reinforce and strengthen the research potential of the Nanotechnology and Functional Materials Centre (NFMC) at FTM UB, through: exchange of know-how and experience with EU networking partners, acquisition of new scientific equipment, increasing of the human potential by hiring of experienced and young researchers, participation in international workshops and conferences and organization of two workshops and one conference, and dissemination of project activities for broader scientific audience. These particular objectives resulted in the increase of the research potential and Centre visibility within ERA.

These activities have established conditions that will allow to exploit fully the research potential thus contributing to the regional development using the knowledge and experience of the research institutions and industries of other regions of Europe, and in that way promoting international S&T cooperation between Europe and Serbia. This will also improve Serbian and regional participation in the RTD Framework Programme and will favour the development of collaboration and setting-up of strategic partnerships between centres in EU and EU convergence region

More specifically the major objectives the FP7 NANOTECH FTM project were to:

- Perform exchange of know-how and training of NFMC FTM UB young researchers in collaboration with EU networking partners,
- Hire two experienced researchers returning to Serbia and three young researchers with PhD degree,
- Acquire new scientific equipment for research in the fields of nanotechnology and functional materials,
- Organize two workshops and one conference dedicated to nanotechnology and functional materials,
- Dissemination of project activities through web site and the media,

These objectives have been accomplished through cooperation with outstanding research and industrial partners from the EU member states:

*- European Centre for Nanostructured Polymers ECNP, Terni, Italy*

*- CNRS Institut De Physique Et De Chimie De Strasbourg, Strasbourg, France*

*- University of Agriculture, Athens, Greece*

*- National Institute for Lasers, Plasma and Radiation Physics, Bucharest, Romania*

- *Riga Technical University/Institute of Inorganic Chemistry, Riga, Latvia*
- *Procter & Gamble, Newcastle, UK*
- *Veolia Water Solutions and Technologies, Paris, France*
- *MaHyTec, Dole, France*

The main objectives of FP7 NANOTECH FTM have increased the Centre excellence in RTD and present an added value to regional research capacity. The approach adopted through this action will provide sustainability through achievement of the major impacts:

**- Better integration of the selected research entities in the European Research Area as a whole;**

Significant contribution is and will be achieved by integration of scientific potential by establishing mutual research activities with the EU based networking partners. The adopted strategy will permit to increase the visibility of our centre within ERA by establishing direct contacts with more than 30 EU based research institutions. It can be expected that the established links and networks created by this project will result in sustainability of the centre and its activities in the future.

**- Upgrading the RTD capacity and capability, human potential, improvement of research management, and acquired scientific equipment;**

**Incoming experienced senior scientists** from LNBL University of Berkeley, USA, and Centro Ceramico, University of Bologna, Italy, have significantly contributed to our centre with research and management experience. The incoming senior scientists have established scientific relations with numerous European and overseas scientists of world rank, which additionally improves the quality of NFMC FTM UB centre.

**Hiring of three new young researchers** in the centre by the support of this project has improved the human resources for research activities. Collaboration with EU networking partners provided crucial professional experience for these young researchers.

**Training of research staff** was performed through exchange of know-how and experience with Networking partner's laboratories and training in processing and characterization methods in the field of nanostructured materials.

**Improvement of research management** was performed through communications with Networking partners, consultations with PAC, and through experience brought by returning experienced scientists.

**Acquisition, development and maintenance or upgrading of research equipment** has been accomplished through purchasing of new S&T equipment. The new equipment is incorporated in the existing laboratories and it will serve to increase the overall research capability of the centre.

**- Improved research capacity for increased contribution to regional economic and social development;**

FTM UB, as a leading institution in the field of nanostructured and functional materials in the region, will serve as a nucleus to spread scientific competence and excellence. By enhancing quality of research and staff as well as upgrading of equipment, Cooperation between scientific and industrial institutions of the region will lead to improvement of industrial practices, regulations and standards, in order to bridge the gap currently existing between Serbia and the EU.

**- Improvement of the potential of the selected research entities to participate in FP7 projects;**

In order to be able to take full participation in FP7 projects, the improvement of research capacities has been achieved through the equipment purchase and upgrading, hiring of new research staff, as well as exchange of knowledge with Networking partners.

During lifetime of NANOTECH TM project the following young researchers have been involved in exchange activities (WP1- Exchange of know-how and experience):

- Dr Sandra Glisic, Dr Ana Jankovic, Dr Pavle Spasojevic, Dr Bojan Jokic, Dr Djordje Veljovic and Dr Slavic Lazarevic,
- Andjelika Bjelajac, Sonja Zdrale, Veljko Djokic, Sanja Erakovic, Nemanja Trisovic, Vuk Radmilovic, Mirjana Mladjenovic, Danijela Kostic, Nevena Prlainovic and Danijela

Brkovic, Ivana Mijjatovic, Milana Zaric, Ivona Castvan, Zeljko Radovanovic and Kata Trifkovic, who are all engineers.

The following senior researchers from NFMC FTM UB have visited EU partner institutions (WP1):

- Professors Djordje Janackovic, Petar Uskokovic, Bojana Obradovic, Aleksandar Marinkovic, Vesna Stankovic-Miskovic, Rada Petrovic, Aleksandar Orlovic and Branko Bugarski and Dr Velimir Radmilovic.

The following researchers from EU networking partner institutions have visited NFMC FTM UB (WP1):

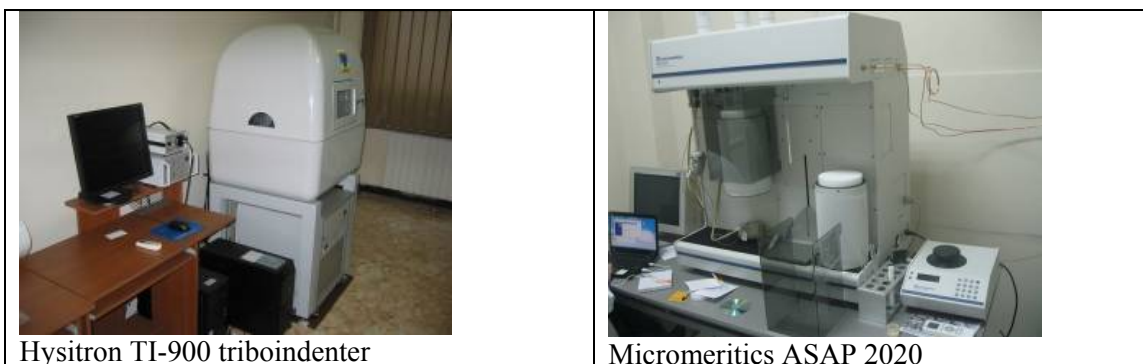
- Prof. Constantinos Georgiou and Dr Efstratios Komaitis, AUA;
- Dr Dusan Djurdjevic, Dr Ahmadian Hossein and Dr Martin Luis de Juan, P&G Newcastle;
- Dr Andrei Popescu, Natalia Serban, Anita Visan, Liviu Duta, Dr Carmen Ristoscu, Dr Gabriel Socol and Dr Felix Sima, NILPRP;
- Dr Marc Drillon, Dr Ovidiu Ersen S. Moldovan and R. Lucian, IPCMS;
- Dr Luca Valentini and Dr Laura Peponi, ECNP;

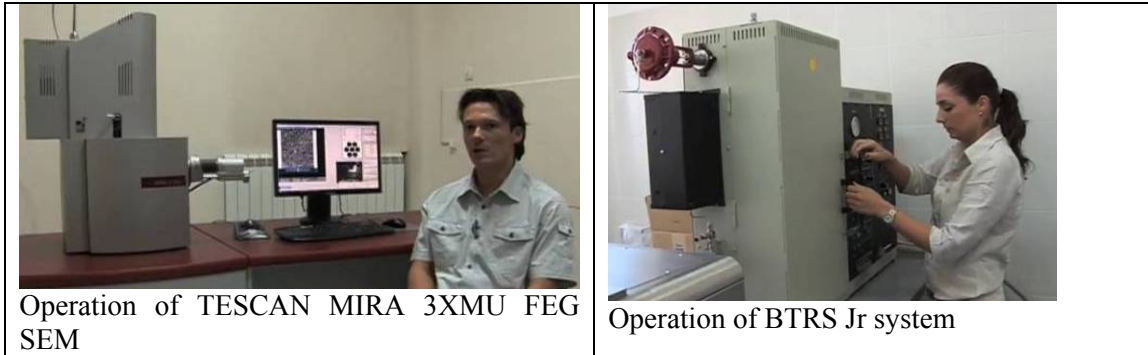
Within activities of WP2 (Dissemination and promotional activities) the project web site was available to the project participants and public at large. TV presentation of NFMC FTM UB was broadcasted through National broadcasting corporation (RTS) and project activities have been presented to broader scientific public as well as to broader general public.

The Centre human potential was improved through continuing presence of two returning experienced researchers and two young researchers with PhD degree. Dr Velimir Radmilovic joined NFMC FTM UB after almost two decades spent at LBNL laboratory for electron microscopy University of California Berkeley USA. Dr Ivan Stamenkovic joined NFMC FTM UB after years of work at University of Bologna Italy. Dr Sandra Glisic and Dr Goran Vukovic joined the Centre in the first 18 months of project duration. Dr Goran Vukovic had left NFMC FTM UB to join his family in Austria. Dr Ana Jankovic joined the Centre in January 2013 after her PhD studies in the USA (Wayne State University).

Material resources of NFMC FTM UB were reinforced through activities of WP4 - Acquisition, development, maintenance or upgrading of research equipment. The following instruments were operated during second part of the project duration:

- Hysitron triboindenter TI-900
- Micromeritics ASAP 2020
- TESCAN MIRA 3XMU FEG SEM microscope
- High pressure reactor system Autoclave Engineers BTRS Jr





Through the course of the project two Workshops and one Conference were planned. The first workshop “*Processing of Nanostructured Ceramics, Polymers and Composites*” was held at FTM UB on November 29 and 30 2010. The second workshop “*Characterization, properties and applications of nanostructured ceramics, polymers and composites*” was held at FTM UB on October 24 and 25 2011. The Workshop was organized as a two day event with participation of prominent scientists working in the area of nanomaterials. Members of the Programm and Organizing committees were from FTM UB and EU Networking partner institutions. Invited lectures were delivered by the leading scientists in this area. International conference “*Processing, characterisation and application of nanostructured materials and nanotechnology*” - NanoBelgrade 2012, was held in Belgrade during September 26-28 2012. Invited lectures were delivered by globally renowned scientists in the field of nanotechnology. Also, NFMC members have participated in the work of 28 international events.



All project activities were organized, initiated and constantly supervised by the activities of WP6 – Project management. The experience of returning researchers and also the active participation of networking partners in project management, have contributed to accomplishment of project objectives. The guidance and help provided by the EU Commission Project Officer were also crucial in decision making and project execution. Main events within this work package were the Kick-off meeting and four PAC meetings held at FTM UB in Belgrade.

## 2. Project objectives

The Nanotechnology and Functional Materials Centre- NFMC FTM UB represents a renowned and one of the leading teaching and scientific institutions in the field of nanostructured and functional materials. The centre consists of three groups: Group for inorganic materials, Group for polymers and Group for composite materials. The research topics are related to the materials for application in environmental engineering, biotechnology, biomedicine and pharmaceuticals, photovoltaics, batteries, fibre-optic light guide, nanocomposite coatings etc.

The project aimed to develop and strengthen institutional ties of the NFMC at the FTM UB, with cooperating research institutions from EU member and EU's Convergence Region States. Further, successful realization of the proposed project attracted other centres from this region to join and participate in the future research activities, giving perspective for further integration of the region into ERA (groups from University of Novi Sad in Serbia, and Universities from FYROM and Montenegro). It is expected that our Faculty will become a leading institution for education and research in this field in the Western Balkan Region, contributing to the generation of added value in research and support capacity building not only locally but also regionally, and in that way will contribute to the regional sustainable development in the field of NMP. This goal has been at least partly achieved since FTM publication record stands out in WBC region.

Based on existing collaboration which has been maintained through the focused or bilateral projects (EUREKA, Pavle Savic, SOCRATES etc.) and visiting professorships, this project developed coordinated activities among the participant and networking partners (European Centre for Nanostructured Polymers ECNP, CNRS Institut De Physique Et De Chimie - Strasbourg, University of Agriculture - Athens, National Institute for Lasers, Plasma and Radiation Physics – Bucarest, Riga Technical University/Institute of Inorganic Chemistry, Procter & Gamble - UK, Veolia Water Solutions and Technologies – France and MaHyTec – Dole). This project provided additional support for training of young researchers as well as for establishing of new job positions in our laboratories. Capacity raise was mainly accomplished by organizing visiting lectures, research exchange, organization of workshops and conferences, new equipment and training in equipment handling and future RTD activities between the Centre and networking partners:

The major NANOTECH FTM objectives were the following:

- Improve networking and exchanging of know-how and experience by exchange of senior researchers through several short visits and to provide training for our young researchers through several one-month training visits
- Hire experienced scientists and young researchers
- Purchase new equipment for research in topics of nanostructured materials and nanotechnology in general
- Develop, launch and support information system through web site, media appearances and printing a flyer offering access to thematic and general information in the field related to NFMC UB research topics
- Organize the first Workshop “*Processing of Nanostructured Ceramics, Polymers and Composites*”, the second workshop “*Characterization, properties and applications of nanostructured ceramics, polymers and composites*” and organize the International conference “*Processing, characterisation and application of nanostructured materials and nanotechnology*” - NanoBelgrade 2012.

### 3. Work progress for the period

#### 3.1 WP1 - Exchange of know-how and experience

##### 3.1.1 Summary

Within the framework of FP7 NANOTECH FTM project the activities within this Work package were planned in order to increase the competence of staff in general, facilitate the use of new purchased equipment and foster the collaborative research with the Networking partners and thus contribute to the overall sustainability of the NANOTECH FTM Centre.

Main tasks are: training of young researches from NFMC FTM UB in EU institutions, study visits to EU institutions of senior scientists from NFMC FTM UB and study visits of researchers from EU networking partners to NFMC FTM UB.

#### **Description of work as stated in the GA**

##### **T1.1**

Trainings of young researches from NFMC FTM UB in EU institutions

ECNP-Terni : 2 months training for 2 researchers

ICPMS-Strasbourg : 2 months training for 2 researchers

AUA-Athens : 2 months training for 2 researchers

MaHyTec-Dole : 1 month training for 1 researcher

NKI : 2 months training for 2 researchers

NILPRP : 2 months training for 2 researchers

(P&G) : 2 months training for 2 researchers

(Veolia) : 2 months training for 2 researchers

8 months training in EU institutions for 3 young researchers

##### **T1.2**

Study visits in EU institutions of senior scientists from NFMC FTM UB

31 one week visits for senior scientists.

##### **T1.3**

Study visits of researchers from EU networking partners to NFMC FTM UB.

One week visits for 30 researchers



**3.1.2 T1.1 - Trainings of young researchers from NPMC FTM UB in EU institutions**

Name of visitor: Veljko Djokic  
Date of the visit : 14.11.2010 – 27.11.2010  
Supervisor: Prof. Ion Mihailescu  
Visited institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, the National Institute for Laser, Plasma & Radiation Physics (NILPRP), Bucharest, Romania

Name of visitor: Slavica Lazarević  
Date of the visit: 13.04. – 15.04.2011  
Supervisor: Prof. José M. Kenny and Prof. Luigi Torre  
Visited institution: Materials Design & Processing and Laboratory of the Material Science and Technology, University of Perugia, ECNP, Terni, Italy

Name of visitor: Ivona Janković-Častvan, M. Sc.  
Date of the visit: 13.04. – 7.05.2011  
Supervisor: Prof. José M. Kenny and Prof. Luigi Torre  
Visited institution: Materials Design & Processing and Laboratory of the Material Science and Technology, University of Perugia, ECNP, Terni, Italy

Name of visitor: dr Djordje Veljović, research associate  
Name of visitor: Željko Radovanović, PhD student  
Date of the visits: 06.06. – 25.06.2011  
Supervisor: Dr Eriks Palcevskis  
Visited institution: Riga Technical University, Institute of Inorganic Chemistry, Riga, Latvia

Name of visitor: Dr Sandra Glisic, Research Fellow  
Date of the visit: 19.06. – 08.07.2011.  
Supervisor: Dr Constantinos A. Georgiou, Analytical Chemistry  
Visited Institution: Agricultural University of Athens AUA (Networking partner) and Hellenic Research Foundation

Name of visitor: Andjelika Bjelajac, PhD student  
Name of visitor: Sonja Ždrale, PhD student  
Date of the visits: 30.06. – 30.07.2011.  
Supervisor: Dr Ovidiu Ersen  
Visited institution: The Institute for Physics and Chemistry of Materials in Strasbourg (IPCMS), Strasbourg, France

Name of visitor: Ivana Mijatovic, PhD student  
Date of the visit: 20.11. – 16.12.2011  
Supervisor: Dr Constantinos A. Georgiou  
Visited Institution: Agricultural University of Athens AUA (Networking partner) and Hellenic Research Foundation

Name of visitor: Milana Zarić, PhD student  
Date of the visit: 20.11. – 16.12.2011  
Supervisor: Dr Constantinos A. Georgiou  
Visited Institution: Agricultural University of Athens AUA (Networking partner) and Hellenic Research Foundation

Name of visitor: Dr Sandra Glisic, Research Fellow  
Date of the visit: 20.11. – 26.11.2011  
Supervisor: Dr Constantinos A. Georgiou  
Visited Institution: Agricultural University of Athens AUA (Networking partner) and Hellenic Research Foundation

Name of visitor: Veljko Djokić, PhD student  
Date of the visit: 01.04. – 12.04.2012  
Supervisor: Prof Dr Ion Mihailescu, Professor, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory  
Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor: Andjelika Bjelajac, PhD student  
Date of the visit: 15.04. – 04.05.2012  
Supervisor: Prof Dr Ion Mihailescu, Professor, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory, Dr Gabriel Socol- NILPRP  
Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor 1: Dr Ana Jankovic, Research Fellow  
Date of the visit: 17.04. – 31.05.2012  
Supervisor: Prof Dr Ion Mihailescu, Professor, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory  
Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor 2: Sanja Erakovic, PhD student  
Date of the visit: 17.04. – 31.05.2012  
Supervisor: Prof Dr Ion Mihailescu, Professor, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory  
Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor: Dr Djordje Veljovic, Research Fellow  
Date of the visit: 08.05. – 17.05.2012.  
Supervisor: Prof Dr Ion Mihailescu, Professor, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory  
Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor: Mirjana Mladjenović (Grković), PhD student  
Date of the visit: 10.5. – 2.6.2012.  
Supervisor: Prof. Dr Luca Valentini, Prof. Dr Josè Maria Kenny  
Visited Institution: Department of Civil and Environmental Engineering, University of Perugia, Italy (ECNP)

Name of visitor: Vuk Radmilović, PhD student  
Date of the visit: 10.05. – 02.06.2012.  
Supervisor: Prof. Dr Luca Valentini, Prof. Dr Josè Maria Kenny  
Visited Institution: Department of Civil and Environmental Engineering, University of Perugia, Italy (ECNP)  
Name of visitor: Dr. Nemanja Trišović, Research Fellow

Date of the visit: 10.05. – 02.06.2012.  
Supervisor: Prof. Dr Luca Valentini, Prof. Dr Josè Maria Kenny  
Visited Institution: Department of Civil and Environmental Engineering, University of Perugia, Italy (ECNP)

Name of visitor: Danijela Brkovic, PhD student  
Date of the visit: 27.05. – 23.06.2012.  
Supervisor: Prof. Dr Luca Valentini, Prof. Dr Josè Maria Kenny  
Visited Institution: Department of Civil and Environmental Engineering, University of Perugia, Italy (ECNP)

Name of visitor: Dr Nevena Prlainović, Research Fellow  
Date of the visit: 27.05. – 23.06.2012.  
Supervisor: Prof. Dr Luca Valentini, Prof. Dr Josè Maria Kenny  
Visited Institution: Department of Civil and Environmental Engineering, University of Perugia, Italy (ECNP)

Name of visitor: Andjelika Bjelajac, PhD student  
Date of the visit: 22.05. – 21.06.2012.  
Supervisor: Dr Ovidiu Ersen  
Visited Institution: Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS)

Name of visitor: Sonja Zdrale, PhD student  
Date of the visit: 22.05. – 21.06.2012.  
Supervisor: Dr Ovidiu Ersen  
Visited Institution: Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS)

Name of visitor1: Dr Bojan Jokic, research associate  
Date of the visit: 03.06. – 23.06.2012.  
Supervisor: Dr Alain Carvalho, Prof. Marc Drillon  
Visited Institution: Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS)  
Name of visitor2: Veljko Djokic, PhD student  
Date of the visit: 03.06. – 23.06.2012.  
Supervisor: Dr Alain Carvalho, Dr Ovidiu Ersen, Prof. Marc Drillon  
Visited Institution: Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS)

Name of visitor: Zeljko Radovanovic, PhD student  
Date of the visit: 10.06. – 30.06.2012.  
Supervisor: Dr Eriks Palcevskis  
Visited Institution: Riga Technical University, Institute of Inorganic Chemistry

Name of visitor: Dr Djordje Veljovic, research associate  
Date of the visit: 13.06. – 19.06.2012.  
Supervisor: Dr Eriks Palcevskis  
Visited Institution: Riga Technical University, Institute of Inorganic Chemistry

Name of visitor 1: Dr Ana Jankovic, Research Fellow  
Date of the visit: 08.10. – 14.10.2012.  
Supervisor: Prof Dr Ion Mihailescu, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory  
Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)  
Name of visitor 2: Sanja Erakovic, PhD student

Date of the visit: 08.10. – 14.10.2012.

Supervisor: Prof Dr Ion Mihailescu, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory

Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor: Andjelika Bjelajac, PhD student

Date of the visit: 08.10. – 14.10.2012.

Supervisor: Prof Dr Ion Mihailescu, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory

Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor: Andjelika Bjelajac, PhD student

Date of the visit: 29.10. – 15.11.2012.

Supervisor: Prof Dr Ion Mihailescu, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory, Dr Gabriel Socol, NILPRP

Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor: Dr Ana Jankovic, Research Fellow

Date of the visit: 29.10. – 15.11.2012.

Supervisor: Prof Dr Ion Mihailescu, Faculty of Physics, University of Bucharest, Head of Laser-Surface- Plasma Interactions Laboratory

Visited Institution: The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

Name of visitor: Danijela Kostić, PhD student

Date of the visit: 04.11. – 01.12.2012.

Supervisor: Dr Ilaria Armentano, Prof. Dr Josè Maria Kenny

Visited Institution: Materials Engineering Centre, UdR INSTM, NIPLAB, University of Perugia, Terni, Italy (ECNP)

Name of visitor: Ivana Mijatović, PhD student

Date of the visit: 18.11. – 23.12.2012.

Supervisor: Dr Constantinos A. Georgiou, Professor, Analytical Chemistry

Visited Institution: Agricultural University of Athens AUA (Networking partner) and Hellenic Research Foundation

Name of visitor: Milana Zarić, PhD student

Date of the visit: 18.11. – 23.12.2012.

Supervisor: Dr Constantinos A. Georgiou, Professor, Analytical Chemistry

Visited Institution: Agricultural University of Athens AUA (Networking partner) and Hellenic Research Foundation

Name of visitor: Kata Trifkovic, PhD student

Date of the visit: 18.11. – 23.12.2012.

Supervisor: Dr Constantinos A. Georgiou, Professor, Analytical Chemistry

Visited Institution: Agricultural University of Athens AUA (Networking partner) and Hellenic Research Foundation

Name of visitor1: Danijela Brkovic, Ph.D. student

Date of the visit: 21.11. – 14.12.2012.

Supervisor: Prof. Dr Luca Valentini, Prof. Dr Josè Maria Kenny  
Visited Institution: Department of Civil and Environmental Engineering, University of Perugia, Italy (ECNP)

Name of visitor2: Dr Nevena Prlainović, Research Fellow  
Date of the visit: 21.11. – 14.12.2012.

Supervisor: Prof. Dr Luca Valentini, Prof. Dr Josè Maria Kenny  
Visited Institution: Department of Civil and Environmental Engineering, University of Perugia, Italy (ECNP)

Name of visitor1: Dr Pavle Spasojevic, Research Fellow  
Date of the visit: 10.12. – 18.12. 2012.

Supervisor: Prof. Dr Dominique Perreux (MaHyTec), Dr Ersen Ovidiu (ICPMS, Strasbourg)  
Visited Institution: MaHyTec (Dole, France), University of Franche-Comté (Besancon, France) and Institut de Physique et Chimie des Materiaux de Strasbourg (Strasbourg, France)

Name of visitor2: Veljko Djokic, PhD student  
Date of the visit: 10.12. – 18.12. 2012.

Supervisor: Prof. Dr Dominique Perreux (MaHyTec), Dr Ersen Ovidiu (ICPMS, Strasbourg)  
Visited Institution: MaHyTec (Dole, France), University of Franche-Comté (Besancon, France) and Institut de Physique et Chimie des Materiaux de Strasbourg (Strasbourg, France)

### ***3.1.3 T1.2 Study visits in EU institutions of senior scientists from NPMC FTM UB***

**Name of visitor:** Dr Lynne Katsikas, Research Fellow  
**Date of the visit:** 15.08. – 23.08.2010.  
**Visited institution:** Professor Horst Weller  
Helmholz Zentrum Berlin for Materials and Energy, Berlin Germany

**Name of visitor:** Professor Aleksandar Orlović  
**Date of the visit:** 02.01. – 06.01.2011.  
**Visited institution:** Dr Constantinos A. Georgiou, Professor

**Name of visitor:** Professor Djordje Janačković  
**Name of visitor:** Professor Petar Uskoković  
**Date of the visit:** 01.03. – 08.03.2011.  
**Visited institutions:** Professor Dominique Perreux, MaHyTec Dole, France  
Dr Ovidiu Ersen, The Institute for Physics and Chemistry of Materials in Strasbourg (IPCMS),

**Name of visitor:** Professor Djordje Janačković  
**Name of visitor:** Professor Aleksandar Orlović  
**Name of visitor:** Professor Petar Uskoković  
**Date of the visit:** 17.04. – 22.04.2011.  
**Visited institutions:** Materials Design & Processing and Laboratory of the Material Science and Technology, University of Perugia, ECNP Terni, Professor Luigi Torre  
Environment and Sustainable Development Department Research on Energy Systems - RSE Spa, Milano, Antonio Negri, Director; Fabio Moia, FP7 Proposal Coordinator

**Name of visitor:** Professor Djordje Janačković  
**Date of the visit:** 20.06. – 25.06.2011.  
**Visited institution:** Dr Eriks Palcevskis  
Riga Technical University, Institute of Inorganic Chemistry, Riga, Latvia

**Name of visitor:** Professor Aleksandar Orlović

**Name of visitor:** Professor Branko Bugarski

**Date of the visits:** 26.06. – 01.07.2011.

**Visited institution:** Agricultural University of Athens (AUA) – Professor's Constantinos Georgiou Laboratory

**Name of visitor:** Professor Aleksandar Orlović

**Name of visitor:** Professor Branko Bugarski

**Date of the visits:** 26.06. – 01.07.2011.

**Visited institution:** Agricultural University of Athens (AUA) – Professor's Constantinos Georgiou Laboratory

**Name of visitor:** Professor Djordje Janačković

**Name of visitor:** Professor Petar Uskoković

**Name of visitor:** Professor Rada Petrović

**Name of visitor:** Professor Vesna Mišković-Stanković

**Name of visitor:** Assist. Prof. Aleksandar Marinković

**Date of the visit:** 01.04. – 04.04.2012.

**Visited institution:** The Laser - Surface - Plasma Interactions Laboratory, Lasers Department, The National Institute for Laser, Plasma & Radiation Physics (NILPRP)

**Name of visitor:** Professor Djordje Janačković

**Name of visitor:** Professor Petar Uskoković

**Name of visitor:** Professor Velimir Radmilović

**Name of visitor:** Assist. Prof. Aleksandar Marinković

**Date of the visit:** 09.04. – 13.04.2012.

**Visited institution:** The Institute of Physics and Chemistry of Materials of Strasbourg (IPCMS)

**Name of visitor:** Prof. Dr Bojana Obradović

**Date of the visit:** 04. – 07. 11. 2012.

**Visited institution:** Dr Ilaria Armentano, Prof. Dr Jose Kenny, Prof. Dr Luigi Torre Materials Engineering Centre, UdR INSTM, University of Perugia, Terni, Italy

**Name of visitor:** Professor Djordje Janačković

**Name of visitor:** Professor Aleksandar Orlović

**Name of visitor:** Professor Branko Bugarski

**Date of the visit:** 24.11. – 29.11.2012.

**Visited institutions:** Analytical Chemistry Laboratory, Agricultural University of Athens, Greece, Professor Constantinos Georgiou

Chemical Engineering Department, University of Patras, Professor Stavros Pavlou

### ***3.1.4 T1.3 Study visits of researchers from EU networking partners to NFMC FTM UB***

**Name of visitor:** Dr Carmen Ristoscu, National Institute for Lasers, Plasma and Radiation Physics, (NILPRP)

**Date of the visit:** 24.01. – 27.01.2010.

**Name of visitor:** Dr Felix Sima, National Institute for Lasers, Plasma and Radiation Physics, (NILPRP)

**Date of the visit:** 24.01. – 27.01.2010.

**Name of visitor:** Dr Gabriel Socol, National Institute for Lasers, Plasma and Radiation Physics, (NILPRP)

**Date of the visit:** 24.01. – 27.01.2010.

**Name of visitor:** Dr Carmen Ristoscu, National Institute for Lasers, Plasma and Radiation Physics, (NILPRP)

**Date of the visit:** 28.11. – 31.11.2010.

**Name of visitor:** Dr Felix Sima, National Institute for Lasers, Plasma and Radiation Physics, (NILPRP)

**Date of the visit:** 28.11. – 31.11.2010.

**Name of visitor:** Dr Gabriel Socol, National Institute for Lasers, Plasma and Radiation Physics, (NILPRP)

**Date of the visit:** 28.11. – 31.11.2010.

**Name of visitor:** Dr Constantinos A. Georgiou, Full Professor, Analytical Chemistry at AUA

**Visit duration:** 12.10.-22.10.2011

**Name of visitor:** Dr Efstratios Komaitis, Research Fellow, AUA

**Visit duration:** 05.12. – 30.12.2011

**Name of visitor:** Dr Constantinos A. Georgiou, Full Professor, Analytical Chemistry at AUA

**Visit duration:** 31.08. – 10.09.2012

**Name of visitor:** Dr Dusan Djurdjevic, F&HC Process Modelling & Simulation

**Name of visitor:** Dr Ahmadian Hossein, F&HC Process Modelling & Simulation

**Name of visitor:** Dr Louis Martin de Juan, F&HC Process Modelling & Simulation

**Visit duration:** Dr Djurdjevic 26.09. – 30.09.2012, others 26.09. – 28.09.2012

**Name of visitor:** Dr Luca Valentini, ECNP Terni

**Name of visitor:** Dr Laura Peponi, ECNP Terni

**Visit duration:** 25.09.-27.09.2012

**Name of visitor:** Dr Carmen Ristoscu, NILPRP Bucharest

**Name of visitor:** Dr Felix Sima, NILPRP Bucharest

**Name of visitor:** Dr Andrei Popescu, NILPRP Bucharest

**Visit duration:** 25.09.-27.09.2012

**Name of visitor:** Natalia Serban PhD student, NILPRP Bucharest

**Name of visitor:** Anita Ioana Visan PhD student, NILPRP Bucharest

**Name of visitor:** Liviu Marian Duta PhD student, NILPRP Bucharest

**Visit duration:** 26.11.-02.12.2012

**Name of visitor:** Dr Constantinos A. Georgiou, Full Professor, Analytical Chemistry at AUA

**Visit duration:** 21.12.-31.12.2012

## 3.2 WP 2 - Dissemination and promotional activities

### 3.2.1 Summary

The objective of this Work Package is dissemination and promotional activities during the lifetime of the project and afterwards. This is important for a successful realization of project objectives and impact through the following established tasks:

Task T2.1 – Maintenance and regular update of web site

Task T2.2 – Design, production and distribution of promotional materials (pamphlets and flyers)

Task T2.3 – Educational program for media (TV) and national publications

Probably the most important way for dissemination of project relevant information is web site, which was maintained and regularly updated in the second project period. In addition, different written dissemination materials, such as flyers are very important for the successful realization of the Project with main goals to inform mainly general public, enhance visibility and dissemination of the project results and improve NFMF FTM UB profile. According to the plan of the Project it was necessary to maintain and update the web site, prepare the first flyer with basic information about NANOTECH FTM. The plan for the second Project period was completely accomplished – web site was maintained and updated, the second flyer was designed and printed in 1000 copies, newspaper coverage was done and several TV media coverage materials were produced and broadcasted.

#### **Description of work as stated in the GA**

##### **T2.1**

The most important way for dissemination of information and successful realization of all established tasks is web site, which should enable easy and fast access to all information and electronic documents, important not only for participants but also for general public. This will be done by appropriate definition of the concept and design of the web site, substantive and linguistic editing of the documents and implementation of all relevant information as an online, searchable set of electronic documents and links to similar web sites.

##### **T2.2**

Pamphlets and flyers about the activities related to the project, obtained results, collaboration efforts of NFMF FTM UB and networking partners as well as reinforced capacities of our centre will be also properly designed to be easy understandably for scholars, students, researchers and partners from industry.

##### **T2.3**

Educational programme for TV media and national publications - journal will be presented for the young people in the fields of:

- Production and characterization of biopolymer thin structures for controlled drug delivery
- Functionalised nanostructures for high sensitivity optical gas detection
- Biomaterials for advanced implants in orthopaedics, dentistry and cardiology
- Production and characterization of nanoparticles with controlled morphology
- Synthesis and characterization of catalytic materials



### 3.2.2 Setting up and maintenance of web site

The website was officially launched on March 2010, on the server of Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia.

The web site address is <http://www.nanotechftm.tmf.bg.ac.rs/>

During the first six months of the NANOTECH FTM project, one goal was to build up a website and to give this Project a unique web presence. It was designed by professionals from Stratcom Company, agency for strategic communication, planning, management and education.

The web site complies to the guidelines of the European Commission for dissemination of project results and project websites. The Website was designed using basic html. The original version of web site had the main menu with seven subjects: Home, Project Structure, Networking Partners, Project teams, Events, gallery and Contacts, (*please see the figure below*), but also contain two more subjects: members login (on the left side) and News (on the right side)..

The NANOTECH FTM web site was continuously improved and updated with new data. Now it contains the following areas:

Project acronym: NANOTECH FTM,  
Project number 245916,  
Work-program call: FP7-REGPOT-1-2009.

The NANOTECH FTM web site was continuously improved and updated with new data during the second part of the project, especially with the data related to the conference and facilities.



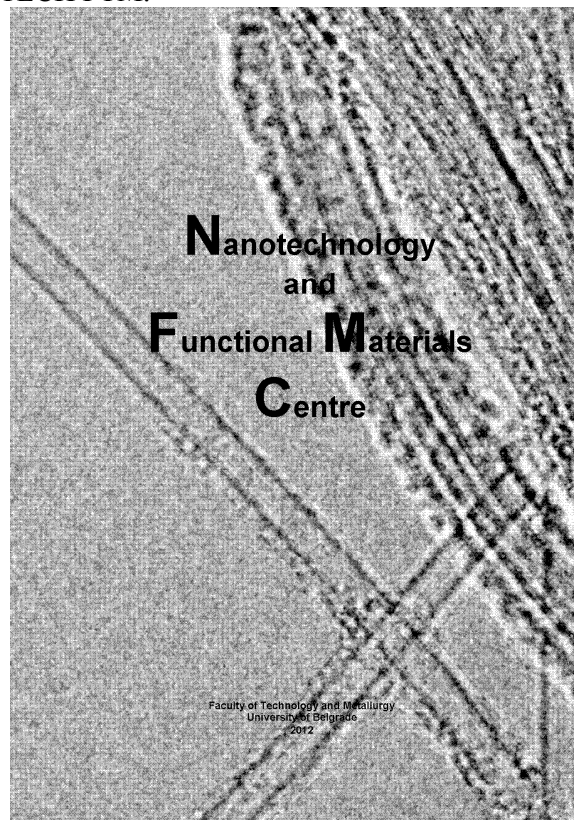
Link to NanoBelgrade 2012 Conference website:

### 3.2.3 Design, production and distribution of promotional materials (pamphlets and flyers)

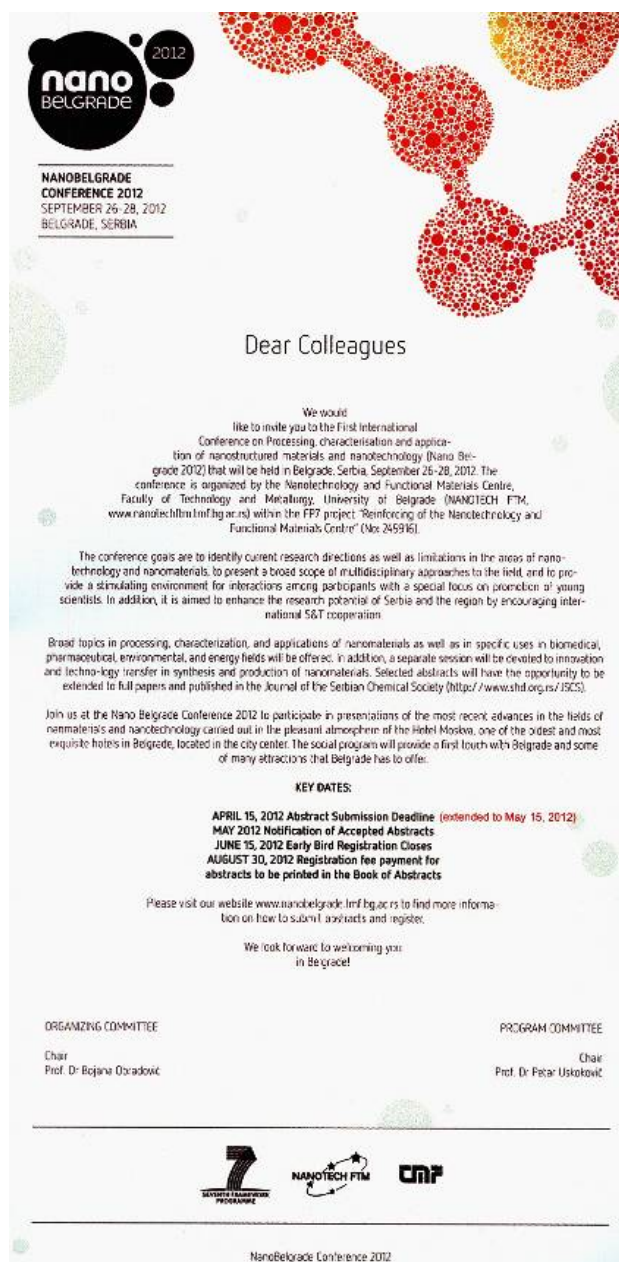
The first flyer was prepared (designed and printed in 1000 copies). It contains basic information about NANOTECH FTM.



The second flyer was prepared (designed and printed in 1000 copies). It contains more information about the centre NANOTECH FTM.



The pamphlet related to the NanoBelgrade Conference informations was also designed, printed in 1000 copies, and distributed to the potential participants in order to announce the conference.



The image shows the front cover of a conference pamphlet. At the top left, there is a logo for 'nano BELGRADE 2012' with a stylized '2012' in a circle. Below it, the text reads 'NANOBELGRADE CONFERENCE 2012 SEPTEMBER 26-28, 2012 BELGRADE, SERBIA'. The background features a decorative pattern of red and yellow dots forming abstract shapes. The main title 'Dear Colleagues' is centered. Below it, the text invites participants to the First International Conference on Processing, Characterisation and Application of nanostructured materials and nanotechnology (Nano Belgrade 2012) held in Belgrade, Serbia, from September 26-28, 2012. It mentions the organizing committee: NanoTechnology and Functional Materials Centre, Faculty of Technology and Metallurgy, University of Belgrade (NANO15CH\_FTM, www.nano15ch.ftm.lmf.bg.ac.rs) within the FP7 project 'Reinforcing of the Nanotechnology and Functional Materials Centre' (No. 245916). The pamphlet lists the conference goals, broad topics, and key dates: APRIL 15, 2012 Abstract Submission Deadline (extended to May 15, 2012), MAY 2012 Notification of Accepted Abstracts, JUNE 15, 2012 Early Bird Registration Closes, and AUGUST 30, 2012 Registration fee payment for abstracts to be printed in the Book of Abstracts. It also provides the website www.nano15ch.ftm.lmf.bg.ac.rs for more information and contact details for the Organizing Committee (Chair: Prof. Dr. Bojana Ozadovic) and Program Committee (Chair: Prof. Dr. Petar Uskokovic). At the bottom, there are logos for '7 SEVENTH FRAMEWORK PROGRAM', 'NANOTECH FTM', and 'CNP'.

**nano**  
BELGRADE  
2012

**NANOBELGRADE  
CONFERENCE 2012**  
SEPTEMBER 26-28, 2012  
BELGRADE, SERBIA

Dear Colleagues

We would like to invite you to the First International Conference on Processing, Characterisation and Application of nanostructured materials and nanotechnology (Nano Belgrade 2012) that will be held in Belgrade, Serbia, September 26-28, 2012. The conference is organized by the NanoTechnology and Functional Materials Centre, Faculty of Technology and Metallurgy, University of Belgrade (NANO15CH\_FTM, [www.nano15ch.ftm.lmf.bg.ac.rs](http://www.nano15ch.ftm.lmf.bg.ac.rs)) within the FP7 project "Reinforcing of the Nanotechnology and Functional Materials Centre" (No. 245916).

The conference goals are to identify current research directions as well as limitations in the areas of nanotechnology and nanomaterials, to present a broad scope of multidisciplinary approaches to the field, and to provide a stimulating environment for interactions among participants with a special focus on promotion of young scientists. In addition, it is aimed to enhance the research potential of Serbia and the region by encouraging international S&T cooperation.

Broad topics in processing, characterization, and applications of nanomaterials as well as in specific uses in biomedical, pharmaceutical, environmental, and energy fields will be offered. In addition, a separate session will be devoted to innovation and technology transfer in synthesis and production of nanomaterials. Selected abstracts will have the opportunity to be extended to full papers and published in the Journal of the Serbian Chemical Society (<http://www.std.org.rs/JSCS>).

Join us at the Nano Belgrade Conference 2012 to participate in presentations of the most recent advances in the fields of nanomaterials and nanotechnology carried out in the pleasant atmosphere of the Hotel Moskva, one of the oldest and most exquisite hotels in Belgrade, located in the city center. The social program will provide a first touch with Belgrade and some of many attractions that Belgrade has to offer.

**KEY DATES:**

**APRIL 15, 2012 Abstract Submission Deadline (extended to May 15, 2012)**  
**MAY 2012 Notification of Accepted Abstracts**  
**JUNE 15, 2012 Early Bird Registration Closes**  
**AUGUST 30, 2012 Registration fee payment for abstracts to be printed in the Book of Abstracts**

Please visit our website [www.nano15ch.ftm.lmf.bg.ac.rs](http://www.nano15ch.ftm.lmf.bg.ac.rs) to find more information on how to submit abstracts and register.

We look forward to welcoming you in Belgrade!

**ORGANIZING COMMITTEE**  
Chair  
Prof. Dr. Bojana Ozadovic

**PROGRAM COMMITTEE**  
Chair  
Prof. Dr. Petar Uskokovic

**7**  
SEVENTH FRAMEWORK  
PROGRAM

**NANOTECH FTM**

**CNP**

NanoBelgrade Conference 2012



### 3.2.4 Educational program for media (TV) and national publications

#### Educational program for media (TV)

During the 1<sup>st</sup> period of reports, one TV broadcast was negotiated with Kopernikus Cable Network, but it was performed in the second project period and broadcasted the Cable Network.

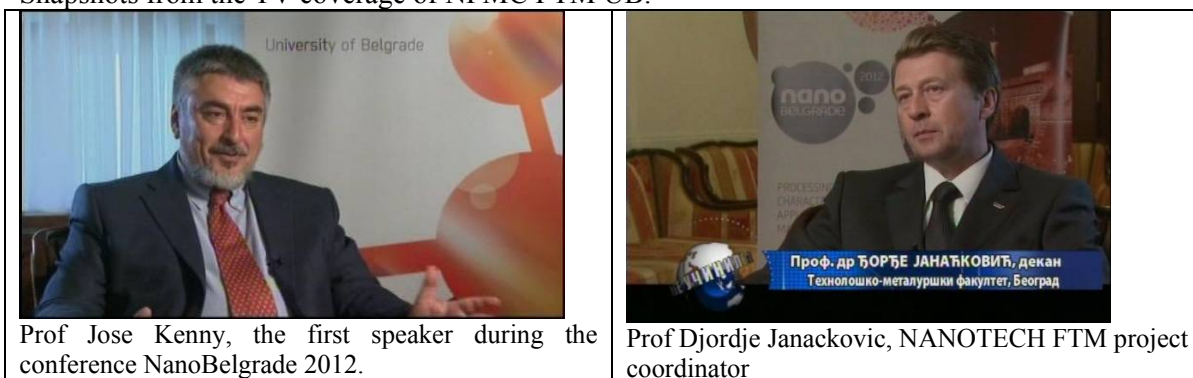


Prof. Djordje Janackovic and prof. Petar Uskokovic presented the details of the NANOTECH FTM project to wider audience.

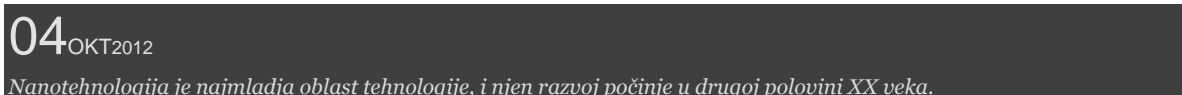
At the national TV network RTS 2, the broadcast titled “What Technologies have done for us - Nanoworld”, was presented on 19.11. 2012. at 20:53. Guests and plenary lecturers from the NanoBelgrade 2012 Conference, held in Belgrade, September 2012 took part in the broadcast. The announcement of the TV coverage can be found at RTS website:

<http://www.rts.rs/page/tv/sr/story/21/RTS+2/1211188/Tehnologije%3A+Nanosvet.html?email=yes>

Snapshots from the TV coverage of NFMC FTM UB.



At the beginning of October, the TV network Mreza, within the Evronet (Euronet) broadcast, presented the NANOTECH FTM Centre, it's activities and the NanoBelgrade 2012 conference.



<http://mreza.rs/evronet/previous-episodes/Obrazovanje-i-nauka/17464/nanotehnologija-kod-nas.html>



**National dissemination/publications**

Several newspaper articles and short info about FP7 NANOTECH FTM project and Nanotechnology and Functional Materials Centre at the Faculty of Technology and Metallurgy University of Belgrade have appeared in the national newspapers with daily newspaper circulation of more than 100000, presenting the role of EU in increasing of research potential of the Centre and research institutions in Serbia, renewal of the existing facilities with the new sophisticated equipment, employment of experienced researchers from foreign institutions, exchange of young scientist, and the exchange of young and senior researchers with EU partners. Some of those are shown below.



### 3.3 WP3 – Strengthening the human potential

#### 3.3.1 Summary

Hiring of young PhD researchers (Post Docs) at NFMC FTM UB was planned as a measure to reinforce human potential and provide simulative climate for creative scientific activities, in the field of nanostructured materials and nanotechnology. Hiring of the experienced senior scientist from National Centre for Electron Microscopy, Lawrence Berkeley National Laboratory, University of California at Berkeley, USA, who is an expert in scanning and transmission electron microscopy (SEM and TEM) techniques as well as in the nanomechanical materials characterisation method, was expected not only to reinforce the research potential, but will also to help in training and education of young scientists at NFMC FTM UB. The main role of Dr Radmilovic was not only in conducting of the high-level research, but also in improving our research and project management, organizing the workshops and conference and inviting the globally known scientists in the field of nanomaterials. Hiring of the second experienced senior scientist from Centro Ceramico, University of Bologna (Dr Stamenkovic), who has extensive experience in the industry oriented research, was expected to direct the Centre research activities towards R&D activities. His role in the project was also in developing new connections and improving existing connections with EU and Serbian industrial partners.

Involvement of incoming experienced researchers and young researchers in the centre was foreseen to help in reducing the brain drain phenomena and therefore further strengthen and reinforce the research in this region.

#### **Description of work as stated in the GA**

##### **T3.1**

Hiring of two incoming experienced senior researchers, from LBNL, University of Berkeley, and Centro Ceramico, University of Bologna at NFMC FTM UB:

- Preparation the research plan,
- Monitoring realization of the plan.

##### **T3.2**

Hiring of three young researchers in NFMC FTM UB:

- Preparation and opening the call for hiring (for three person in the first year);
- Selection of the best candidates;
- Preparation the plan for training of hired young researchers,
- Monitoring realization of the plan.

### 3.3.2 T3.1 – Hiring of two incoming experienced senior researchers

#### Hiring of Dr Ivan Stamenkovic

During the first month of the project duration, an incoming experienced researcher **Dr Ivan Stamenkovic** was employed at the FTM UB and NANOTECH FTM centre. Dr Ivan Stamenkovic has been active through the whole period of project duration in consultations with PhD students working in NFMC FTM UB and in establishing new communications with renowned scientists which could take participation in the project activities. Dr Stamenkovic established initial contacts with Prof. Aldo Boccacini (University of Erlangen, Imperial College London) and Rodrigo Botela Moreno (CSIC- Instituto Ceramica y Vidrio, Madrid). Scientific and other relevant topics of interest for Dr Ivan Stamenkovic was in the field of ceramic nanomaterials. His active participation in the organization of the Workshops and the Conference and in establishing new contacts of the NFMC FTM UB was very important for the expansion of our collaboration network within ERA.



Dr Ivan Stamenkovic during the first Workshop.

#### Hiring of Dr Velimir Radmilovic

As of October the 1<sup>st</sup> 2010, the contract of employment was signed with Dr Velimir Radmilovic. His duties of experienced incoming scientist, as planned by the proposal, were devoted to NANOTECH FTM centre in research, training and management assistance activities. Dr Radmilovic was engaged from the start of this project in planning, equipment negotiations (Hysitron Triboindenter) as well as in research activities. As a result of his expertise and work with younger researchers, several publications appeared in respected international scientific journals, like *Nature Materials* shown below.

**V. Radmilovic**, C. Ophus, E.A. Marquis, M.D. Rossell, A. Tolley, A. Gautam, M. Asta, U. Dahmen, Highly monodisperse core-shell particles created by solid-state reactions, *Nature Materials*, 10 (9), (2011) pp. 710-715.

Scientific topics with full collaboration of Dr Radmilovic were related to the implementation of contemporary nanomaterials such as graphenes and carbon nanotubes in multi-functional composites, catalysts carriers, drug delivery purposes and sorbents for water treatment. Experience in high resolution microscopy and surface nanomechanics contributed to the efficient planning of NFMC FTM UB organization and sustainability. Dr Radmilovic participated in management improvement which will enable the staff to be more efficient for participating in new project calls. His international research experience, broad network of international world class collaborators and organizational skills, are expected to enhance further the scientific capabilities of NANOTECH FTM centre.

During final NANOTECH FTM project months Dr Velimir Radmilovic was elected as member of the Serbian Academy of Sciences and Arts which confirms a leading role of NFMC FTM UB in the research

within the region. Dr Radmilovic was also very active in increasing visibility of NFMC FTM UB through connection in the USA and during his visits to events organized in the USA.



Dr Velimir Radmilovic delivering lecture at International conference.

### ***3.3.3 T3.2 - Hiring of three young researchers in NFMC FTM UB***

Hiring of young PhD researchers within NANOTECH at FT UB reinforced the human potential and provided stimulating climate for creative scientific activities in the field of nanotechnology and advanced functional materials. Three young PhD who participated in NFMC UB were: Dr Sandra Glisic, Dr Goran Vukovic and Dr Ana Jankovic.

#### **Dr Sandra Glisic**



Dr Sandra Glisic started her work with the NFMC FTM UB on 1<sup>st</sup> of August 2010. She continued to publish her research in leading international journals and other scientific publications. Her contribution to scientific quality of the Centre was important since she received training and was able to train younger researchers at NFMC FTM UB. Her main contribution related to nanotechnology and advanced functional materials was within high pressure methods for synthesis and modification of nanomaterials. She stayed within the Centre until the Project was finalized and she is expected to remain with the Centre beyond the current FP7 project. Funding will be sourced from Serbian Ministry of Education and Science.

#### **Dr Goran Vukovic**



Dr Goran Vukovic started her work with the NFMC FTM UB on 12<sup>th</sup> of July 2010. He published his research in leading international journals and other scientific publications. His main expertise related to nanotechnology and advanced functional materials was within synthesis and modification of carbon nanotubes, composite materials and advanced nanostructured sorbents. However, due the fact that his family was living in Austria for some time, he had to leave the Centre and to join his family. His contract was terminated as of August 2011.



**Dr Ana Jankovic**



In July 2001 Ana Jankovic moved to USA, since she had received full scholarship for PhD studies at Wayne State University, Detroit, Michigan. In 2009, Ana Jankovic has completed her doctoral degree from the Department of Chemistry at Wayne State University, working in Prof. Mark Spaller's laboratory. Dissertation was titled "Isothermal Titration Calorimetry Studies of Protein-mediated Interactions and Preliminary Structural Studies of Tandem PDZ1-2 Domain of PSD-95 Protein". During her PhD studies she worked as a Graduate Research Assistant and Graduate Teaching Assistant at the Department of Chemistry, WSU, Detroit, MI.

Since January 2012, Dr Ana Jankovic has been working in NFMC FTM UB. During 2012 she has been a visiting scientist at NILPRP-The Laser-Surface-Plasma Interactions Laboratory at the National Institute for Laser, Plasma, and Radiation Physics in Bucharest, Romania as part of FP7-REGPOT 2009 Nanotech project. She remained in NFMC until the finalization of FP7 NANOTECH FTM project. She is expected to remain with the Centre beyond the current FP7 project and funding will be sourced from Serbian Ministry of Education and Science.

### 3.4 WP4 – Acquisition, development, maintenance or upgrading of research equipment

#### 3.4.1 Summary

The objectives of this work package were purchase of new equipment, as well as upgrading and renewal the existing laboratory devices and equipment:

1. The existing self-designed and self-made surface area and porosimetry analyzer couldn't measure the specific surface area, pore size distribution as precisely as new equipment. Additionally the device can't measure the pore size in the range of micropore and does not have chemisorption option. The new device MICROMERITICS ASAP 2050, purchased within the frame of this project, uses gas sorption techniques in order to enable accurate and precise surface area and pore-size distribution measurement. The new surface area and porosimetry analyzer increased the research potential of the centre in the field of porous materials for sorption and catalytic applications.
2. The Centre laboratory for mechanical testing was equipped with devices for conventional testing of materials. A device for nanomechanical testing of materials TriboIndenter (for example Hysitron, Inc., MN, and USA) completed the testing facilities from macro- to nano-level. Precise mapping of the mechanical properties is beneficial for polymer blend characterization, nanoceramic phase separation and measurement of the properties of composite constituents especially in defining the interphase region. This has contributed to the advance of the knowledge of boundary regions in contemporary materials.
3. Upgrading TEM with EDS OXFORD analyzer was planned in order to enable the qualitative and quantitative chemical analysis of the materials at nanometer scale.
4. Purchasing of modular reactor system (Autoclave Engineers or similar) was planned in order to modify and synthesize functional nanomaterials.
5. Upgrading of Supercritical extraction system with liquid dosing line in order to produce nanoparticles.

#### **Description of work as stated in the GA**

**T4.1** Purchasing and upgrading of the equipment. Preparing tender documentation and criteria for selecting the best offer; Selection of the best offer.

Purchase of the MICROMERITICS ASAP 2050 with gas sorption and chemical adsorption techniques

Purchase of the EDS for TEM analyzer with software and element standard OXFORD,

Purchase of the TriboIndenter,

Purchase of the modular reactor system (Autoclave Engineers or similar),

Upgrading of Supercritical extraction system.

#### **T4.2**

Installation and testing of purchased equipment

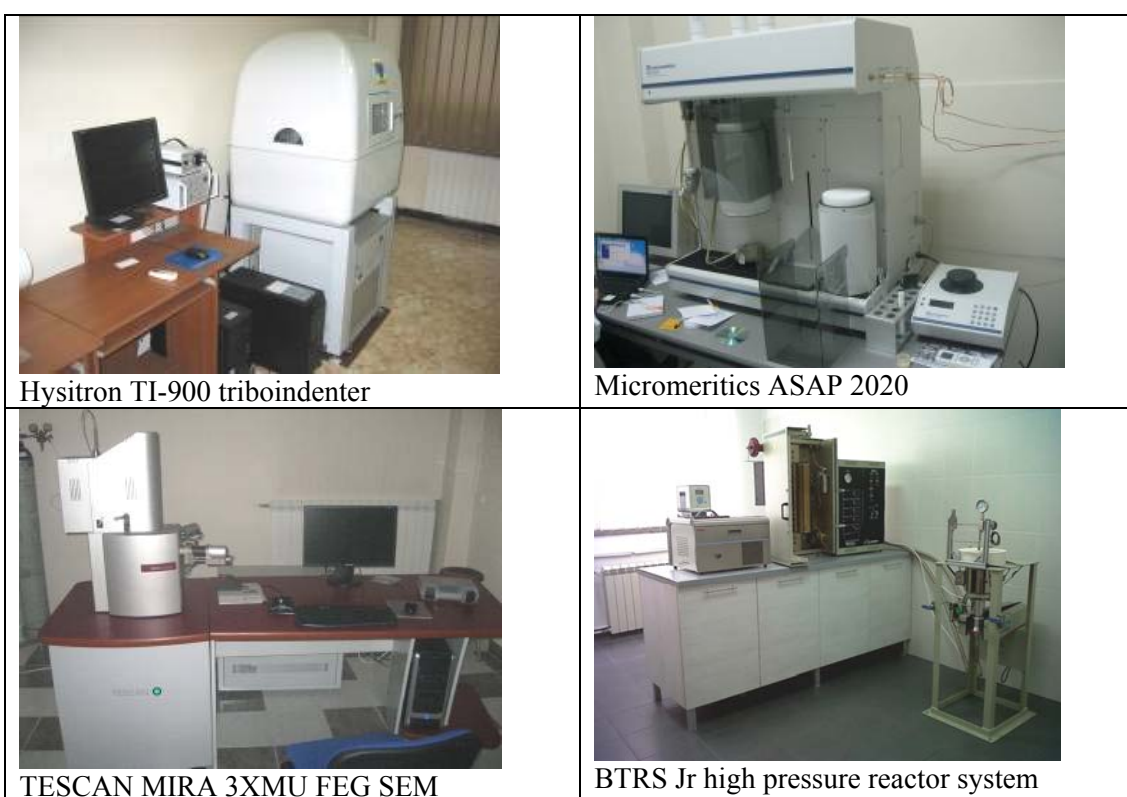
#### **T4.3**

Training in equipment handling and operation

### 3.4.2 T4.1 - Purchasing and upgrading of the equipment

The following items have been acquired through FP7 NANOTECH FTM project:

- MICROMERITICS ASAP 2050 with gas sorption and chemical adsorption techniques
- TESCAN MIRA 3XMU FEG Scanning Electron Microscope
- TriboIndenter Hysitron TI-900
- BTRS Jr high pressure system with Carberry reactor and cooling unit



Strengthening of NFMF FTM UB capacity with respect to scientific equipment played one of the key roles in reinforcing the Centre. Lack of up to date scientific equipment in WBC institutions was always one of the crucial obstacles in achieving excellence. The equipment which has been purchased through this project will provide milestone for future development of NFMF. The impact that has been achieved so far speaks for itself; more than 40 publications in international journals affiliated to Faculty of Technology and Metallurgy University of Belgrade in January 2013 alone. The increasing achievement has been accomplished over the past few years, and in substantial degree it can be linked to FP7 NANOTECH FTM project.

In order to demonstrate the overall material resources of the Centre two lists are provided below, showing material resources of NFMF. The equipment shown below will provide solid base for further increase of NFMF research capacity.

***3.4.3 T4.2 - Installation and testing of purchased equipment***

Installation and testing of acquired equipment has completed mainly in the first project period. All units are operational.

***3.4.4 T4.3 - Training in equipment handling and operation***

Training sessions for most of the units have been completed during installation and training. These sessions were organized together with equipment suppliers.

### 3.5 WP5 - Workshops and Conference

#### 3.5.1 Summary

Within the framework of FP7 NANOTECH FTM project two international workshops and one international conference were planned in order to increase international reputation and visibility of NFMC FTM UB within ERA. The main goals which were expected were networking with EU research institutions, training and dissemination through participation of NFMC FTM UB members in international conferences

These events and activities were also perceived as a part of dissemination, reinforcement and training strategy. Two workshops and one conference were planned for this project. The first Workshop “Processing of Nanostructured Ceramics, Polymers and Composites”, was planned to be held in Belgrade (FTM UB), with focus on tailoring of novel materials on the nanoscale using different processing techniques. The programme of the workshop was planned to be general, with limited number of invited speakers (scientists from the Networking partners of the project and eminent scientists from other EU institutions). Workshop was open for attendance to all scientists working in the field of nanostructured materials and nanotechnology from the WB region, EU’s convergence region and EU scientific institutions.

The second Workshop “Characterization, Properties and Application of Nanostructured Ceramics, Polymers and Composites” will have general task to demonstrate importance of nanostructured materials as a result of their superior physical properties and influence on a new technology developments. The programme will be covered by invited lectures and oral presentations and open for all scientists working in the field of nanostructured materials and nanotechnology.

The Conference “Processing, characterisation and application of nanostructured materials and nanotechnology” will be held in Belgrade at the end of third year of the project. Besides lecturers from NFMC FTM UB and the networking partners, researchers from institutions related to FTM UB from the WB region, EU community and overseas collaborators will take participation. Accompanying sessions with the participation of young researchers and round table meetings will be held during the Conference.

#### **WP5 - Description of work as stated in the GA**

##### **T5.1**

Organization of the first Workshop “Processing of Nanostructured Ceramics, Polymers and Composites”, will be held in Belgrade (FTM UB), November/December 2010.

##### **T5.2**

Organization of the second Workshop “Characterization, Properties and Application of Nanostructured Ceramics, Polymers and Composites”, will be held in Belgrade (FTM UB), November/December 2011.

##### **T5.3**

The Conference “Processing, characterization and application of nanostructured materials and nanotechnology” will be held in Belgrade at the end of third year with the participation of scientists from networking partners, institutions related to FTM UB from the WB region, EU community and overseas collaborators. Accompanying sessions with the participation of young researchers and round table meetings will be held during the Conference.

##### **T5.4**

Participation to the conferences related to the nanotechnology, nanomaterials and functional materials of the NFMC FTM UB members in order to get of overview of new trends and state-of-the art in research topics related to the centre as well as to establish new connections with colleagues from EU institutions.

### ***3.5.2 T5.1 – The first Workshop “Processing of Nanostructured Ceramics, Polymers and Composites”***

The first Workshop was held at FTM UB in Belgrade during November 29 and 30. The Workshop was organized as a two day event with participation of prominent European scientists working in the area of nanomaterials. The average attendance was around 60 persons per session. Members of the Programm and Organizing committees are shown below and as can be seen the members were from FTM UB and EU Networking partner institutions. Invited lectures were delivered by the leading European and National scientists in this area.

The workshop was concluded with Round table dedicated to topics and perspectives of Nanotechnology and functional materials today and for future. During the event, participants from EU institutions, Serbian and regional institutions and stakeholders derived conclusions related to the priorities and potential risks associated with the development of this vibrant topic. Biomaterials and their perspectives are likely to be less attractive in the future while the rising attractiveness of the materials for energy application is expected. New topics for FP7 calls were discussed with the agreement and draft ideas of collaborative networking of new partner institutions with NFMC UB. Also, due to high participation of EU and Serbian scientists in the workshop the visibility of NANOTECH FTM was increased locally and also in the ERA.



The first International Workshop on Processing of Nanostructured Ceramics, Polymers, and Composites at the Faculty of Technology and Metallurgy, University of Belgrade organized within the framework of FP7 NANOTECH FTM project.

### ***3.5.2 T5.2 – The second Workshop “Characterization, properties and applications of nanostructured ceramics, polymers and composites”***

The second Workshop was held at FTM UB in Belgrade during October 24 and 25. The Workshop was organized as a two day event with participation of prominent European scientists working in the area of nanomaterials. The average attendance was around 50 persons per session. Members of the Programm and Organizing committees are shown below and as can be seen the members were from FTM UB and EU Networking partner institutions. Invited lectures were delivered by the leading European and National scientists in this area.

The workshop was concluded with second PAC meeting. During the event, participants from EU institutions, Serbian and regional institutions and stakeholders derived conclusions related to the priorities and potential risks associated with the development of this topic. New topics for FP7 calls were discussed with the agreement and draft ideas of collaborative networking of new partner institutions with NFMC

UB. Also, due to high participation of EU and Serbian scientists in the workshop the visibility of NANOTECH FTM was increased locally and also in the ERA.



The second International Workshop at the Faculty of Technology and Metallurgy, University of Belgrade organized within the framework of FP7 NANOTECH FTM project.

### ***3.5.3 T5.3 – The International Conference NANO Belgrade 2012 on Processing, characterization and application of nanostructured materials and nanotechnology***

The international conference NANO Belgrade 2012 was held in Hotel “Moscow” in Belgrade during September 26 to 28. The Conference was organized as a three day event with participation of prominent scientists working in the area of nanomaterials from the EU, USA, Israel and WBC countries. The average attendance was around 60 persons per session. Members of the Program and Organizing committees are shown below and as can be seen the members were from FTM UB and EU Networking partner institutions. Invited lectures were delivered by the leading European and International scientists in this area.

The first Conference day was concluded with the third PAC meeting. During the event, participants from EU institutions, overseas institutions, Serbian and regional institutions as well as stakeholders have exchanged views, scientific results and opinion related to the topic of nanomaterials and nanotechnology. Due to participation of EU and Serbian scientists in the work of NANO Belgrade 2012 Conference the visibility of NANOTECH FTM was increased locally and also in the ERA. New collaboration links were agreed with several research organizations and companies.





Presentation of Prof. Marc Drillon the director of IPCMS Strasbourg.

#### ***3.5.4 T5.4 - Participation in the international conferences***

Participation in the work of international conferences related to the nanotechnology, nanomaterials and functional materials of the NFMC FTM UB members was planned in order to get an overview of new trends and state-of the art in this field. Also new trends and contacts were planned to increase visibility of the Centre, increase participation in the activities of ERA and provide potential future collaboration. New potentially interesting areas of research were screened in order to generate ideas for future research and collaboration

The following international workshops, conferences and events were attended by the members of NFMC FTM UB:

- Dr A. Orlovic attended the 3<sup>rd</sup> Stakeholder Plenary Meeting of the European Biofuels Technology Platform (EBTP) held in Brussels on April the 14<sup>th</sup>, 2010 and also the CEUBIOM (Classification of European Biomass Potential for Bioenergy) during the following two days (Brussels 15<sup>th</sup> and 16<sup>th</sup> of April).
- Dr A. Orlovic attended the Strategic Initiative Workshop – Sustainable Production of Transportation Fuels and Chemicals: Challenges and Opportunities held in Oostende 25.04. – 28.04. 2010.
- Dr Janackovic, Dr Uskokovic and Dr Orlovic have participated in the 6<sup>th</sup> International ECNP Conference (28.04 -30.04.2010). ECNP is the key networking partner within FP7 NANOTECH FTM project and participation in this conference was crucial for advancing our visibility within ERA.
- Dr B. Obradovic attended the ETP Proposers Day 2010 organized by the European Technology Platform for Nanomedicine and held in Berlin on April 12, 2010.
- Dr B. Obradovic participated in the work of 14th International Biotechnology Symposium and Exhibition: Biotechnology for the Sustainability of Human Society held in Rimini Italy, September 14 – 17 2010.



- NFMC FTM UB members I. Castvan – Jankovic, S. Lazarevic, Z. Radovanovic and A. Pantelic attended the Hybrid Materials 2011 conference held in Strasbourg from March 6<sup>th</sup> till March 10<sup>th</sup> 2011.
- Dr G. Vukovic participated in the work of 12<sup>th</sup> Annual Conference YUCOMAT 2010 held in Herceg Novi Montenegro (September 6 – 10 2010). The Conference was organized in the following symposia: Advanced Methods in Synthesis and Processing of Materials, Advanced Materials for High-Technology Application, Nanostructured Materials, Composites and Biomaterials.
- Dr P. Uskokovic participated in the work of 12<sup>th</sup> Annual Conference YUCOMAT 2010 held in Herceg Novi Montenegro (September 6 – 10 2010). The Conference was organized in the following symposia: Advanced Methods in Synthesis and Processing of Materials, Advanced Materials for High-Technology Application, Nanostructured Materials, Composites and Biomaterials.
- Dr Djordje Janackovic attended *NANOTEX 2011 exhibition* 07.07.-15.07.2011. in Thessaloniki, Greece. The exhibition offered an outstanding opportunity to meet the emerging Nanotech industry.
- Dr Velimir Radmilovic delivered several lectures to audience in Ljubljana, Slovenia as well as in Graz, Loeben and Vienna, Austria, during 01.12. – 17.12.2011.
- Dr Velimir Radmilovic attended MC2011, Microscopy Congress, 30.08. – 02.09.2011. in Kiel, Germany.
- Dr Velimir Radmilovic attended MCM2011 Multinational Microscopy Congress, 06.09. – 11.09.2011. in Urbino, Italy.
- Dr Bojana Obradovic attended the 24<sup>th</sup> European Conference on Biomaterials 03.09. – 10.09.2011. in Dublin Ireland, and also The Annual Conference of the European Society for Biomaterials. The Conference gathered over 700 participants presenting current advances in synthesis, characterization and application of various biomaterials including nanostructures and nanomaterials.
- Dr Rada Petrovic attended EUROMAT 2011 Conference held in Montpellier (France) 11.09. – 16.09.2011.
- Professor Djordje Janačković and Professor Petar Uskoković attended The 7<sup>th</sup> ECNP International Conference on Nanostructured Polymers and Nanocomposites, during April 24 – 26, 2012, Prague, Czech Republic.
- Dr Velimir Radmilovic attended “Solid State to Biophysics” International Conference during 08.06. – 13.06.2012. in Cavtat, Croatia.
- Dr Snezana Pasalic attended Info day on EU research calls in the area of Environment during 10.06. – 13.06.2012. in Brussels, Belgium.
- Dr Velimir Radmilovic attended Advanced Materials and Nanoanalysis Joint Workshop of the the Institute of Metallurgy and Materials Science of the Polish Academy of Sciences and Dresden Fraunhofer Cluster Nanoanalysis during 17.06. – 22.06.2012. in Cracow, Poland.

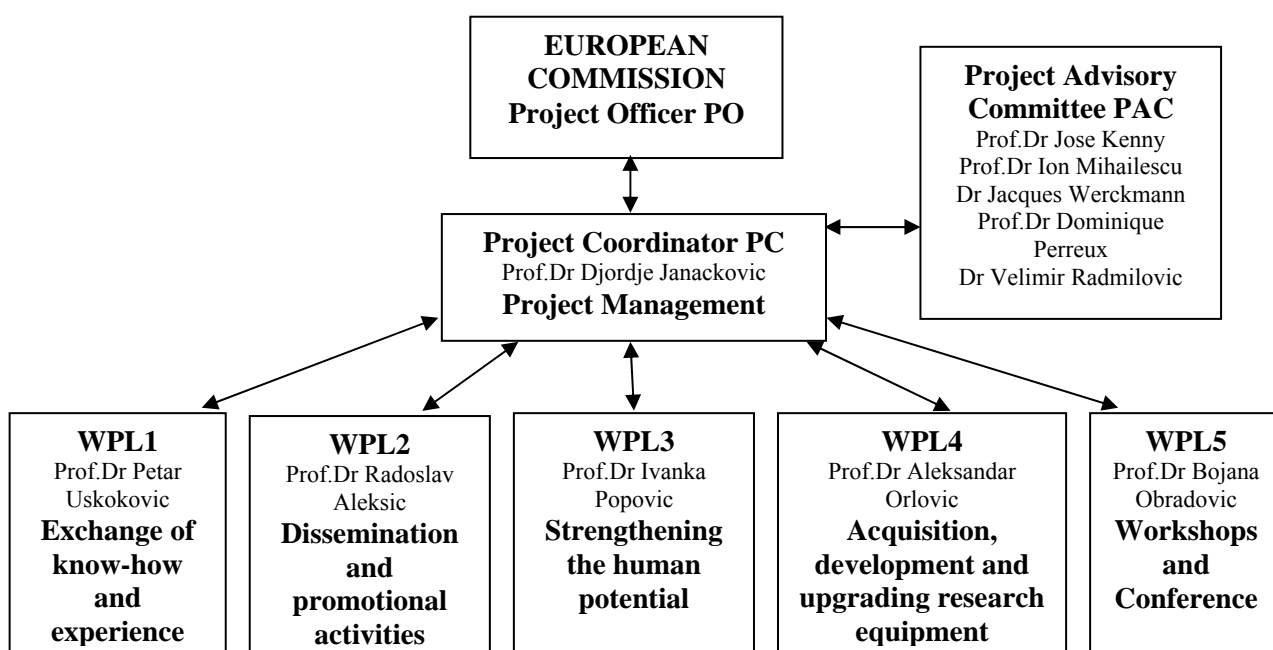
## 4. Project Management

### 4.1 Summary

The Project Coordinator (PC) heads the project and acts as the primary interface between the project participant and the Project Officer (PO) appointed by the EU Commission. The PC of FP7 NANOTECH FTM is Prof. Dr Djordje Janackovic. The work package leaders (WPL) assume the responsibility for the realization of the appropriate work package. Project management is advised by the Project Advisory Committee which incorporates experienced EU scientists and NFMF FTM UB returning experienced scientists. Primary roles of the PAC will be in the following:

- Advising the PC and WPLs,
- Monitoring project progress,
- Help in planning of the project activities,
- Early warning on the risks associated with timely execution of project activities and support in mitigating these risks.

The Project Management is explained in simplified diagram shown below.



#### **WP6 Description of work as stated in the GA**

##### **T6.1**

Organization of Kick off meeting with participation of PC, PAC and WPLs. This meeting will be held in Belgrade within one month the project official starting date.

##### **T6.2**

Project progress will be monitored continuously over the lifetime of the project. This will be performed by the: organization of periodic meetings, coordination of work within the centre, coordination of joint activities of project participant and Networking partners, continuous communication with the Commission through the assigned PO, budget allocation as specified within WPs, coordination of WPLs, monitoring of web site and other dissemination activities, work on annual and Commission reports and organization of financial and other audits.

##### **T6.3**

PAC will meet regularly over the duration of the project (4 meeting in total with Kick off meeting included) and will compose a final report in the last month of the project duration.

## **4.2 Achievements**

The PC and Project Management members (WPLs) assumed the responsibility to compose Financial and Progress report after first period of 18 months (interim report), second periodic report (period month 19 to 36) and Final Commission report at the end of the project duration. Financial reports were audited by the External financial audit expert (IEF- Belgrade), who was hired for this purpose. The PC together and WPLs was responsible for communication issues between research groups (ceramic, polymer and composite groups) and their collaboration with networking partner from EU institutions. They also had roles to coordinate the project activities within the project, coordinate the interdependent activities within the each WP and groups and to bring the main decisions within the project. Assignment allocation was finalized during initial (kick-off) meeting (after the final discussion with the EC officer) and was monitored by the PC, WPLs and PAC through regular meetings at NFMC and PAC meetings. The progress of each work package was presented and discussed at the week-to-week meeting of PC and WPLs, according to the deadlines agreed and set. Decision making was also supported through consultations with Project Officer.

After the project closure date all project activities have been assessed against the project proposal and it was concluded that all major tasks have been achieved in full, with minor deviations. Those deviations were mainly caused by inability of some Networking partners to follow project timeline and assist in achieving project goals. However, those deficiencies were minor and not substantially relevant for major project goals and impacts. Based on this assessment the achievements of Project Management were evaluated as positive and competent.

### ***4.2.1 T6.1 and T6.3 - The Kick-off Meeting and the first PAC meeting***

The Kick-off meeting was held in Belgrade on 25<sup>th</sup> and 26<sup>th</sup> of January 2010 at the FTM UB. The meeting was scheduled to proceed according to the meeting Agenda which was previously distributed to participants by e-mail. Most of the invited participants were able to attend the meeting although the timing was very tight (due to recent Holiday season and project start-up date). As planned the Kick-off meeting was organized in Belgrade at the Faculty of Technology and Metallurgy University of Belgrade - FTM UB (NANOTECH FTM Centre premises) with participation of Project Advisory Committee (PAC)

members, representatives of networking partner institutions, NANOTECH FTM Centre members, Project Coordinator (PC) and Work Package Leaders (WPL).

The following individuals have participated in different sessions of the Kick-off meeting.

**PAC members:**

- Prof. Dr Jose Kenny from *European Centre for Nanostructured Polymers, Italy, (ECNP)*,
- Prof. Dr Ion Mihailescu from *National Institute for Lasers, Plasma and Radiation Physics, Romania, (NILPRP)*,
- Dr Jacques Werckmann from *Institut de Physique et Chimie des Materiaux de Strasbourg, France, (IPCMS)*,
- Dr Ivan Stamenkovic (experienced incoming scientist) in place of Dr Velimir Radmilovic. All topics covered by the Kick-off meeting were discussed with Prof. Radmilovic during his stay at FTM UB in early days of January 2010. These discussions were held with participation of Prof. Djordje Janackovic (PC), Prof. Petar Uskokovic (WPL), Prof. Ivanka Popovic (WPL and Faculty Dean), Prof. Radoslav Aleksic (WPL) and Prof. Aleksandar Orlovic (WPL).

**Representatives of networking partner institutions:**

- Dr Eriks Palcevskis from *Riga Technical University, Institute of Inorganic Chemistry*,
- Mr Nenad Obradovic, manager of *Veolia Water S&T doo*

**NANOTECH FTM members, PC and WPL:**

- Prof. Djordje Janackovic PC,
- Prof. Petar Uskokovic WP1,
- Prof. Radoslav Aleksic WP2,
- Prof. Aleksandar Orlovic WP4,
- Prof. Bojana Obradovic WP5,
- Prof. Srdjan Pejanovic,
- Prof. Vesna Radojevic,
- Prof. Rada Petrovic,
- Prof. Jelena Miladinovic,
- Prof. Melina Kalagasidis- Krusic,
- Prof. Aleksandra Peric- Grujic,
- Dr Lynne Katsikas,
- B. Jokic PhD student and Research Associate,
- Dj. Veljovic PhD student and Research Associate,
- G. Vukovic PhD student and Research Associate.

All principal aspects of the project were discussed in great detail and the experience of PAC members contributed greatly to the quality of the meeting. It was agreed to monitor project execution regularly and to distribute information timely.



From left to right: Dr I. Stankovic, Prof. J. Kenny, Prof. S. Pejanovic and Prof. J. Werckmann.

Due to the fact that all PAC members were present at the FTM UB the opportunity was used to hold the first PAC meeting. In general, the meeting conclusions followed the conclusions reached at the Kick-off meeting.

#### ***4.2.2 T6.2 - Results***

Coordination of all activities of FP7 NANOTECH FTM was accomplished in continuous communication among Project Management members through daily and weekly meeting, electronically and by phone. Also, meetings/contacts during short visits, PAC meetings, the second Workshop and the Conference were also used to manage most important subjects and clarify current problems. The second Workshop and the third PAC meeting were the most important events, for analysis of all questions, tasks and duties, related to FP7 NANOTECH FTM project management. The Project Coordinator, Prof. Dj. Janackovic, has communicated very often with the Project Officer, Anna Remond, mostly through e-mail. The Project Officer carefully followed progress of FP7 NANOTECH FTM, and very often with very constructive suggestions and instructions assisted the management in solving the crucial problems and in defining the adequate actions to be taken.

All project activities were completed successfully except exchange activities with P&G and Veolia. However, cooperation of NFMC members with Veolia was going on during entire project lifetime, and will certainly continue after project closure. Prof. Janackovic was donated a reversible osmosis pilot unit by Veolia and Prof. Orlovic had technical collaboration with Veolia on FIAT manufacturing site in Kragujevac, Serbia. These technology transfer activities were crucial in increasing NFMC FTM expertise and also in increasing impact of NFMC on local industrial development (mainly completed with Veolia office in Belgrade). Cooperation with Veolia contributed to regional economic and social development through increased research and technical capacity of NFMC and its members. NFMC received invitation to visit Veolia offices in France during May 2013.

Due to retirement of Dr David York from P&G Newcastle exchange activities with this partner were slowed down. After reestablishing contacts with P&G through Dr Djurdjevic it was agreed to organize and perform exchange activities during early 2012. However, at that time, there was a wide reorganization activity within P&G and consequently P&G staff was reluctant and unable to proceed with cooperation within NANOTECH project. After visiting NFMC FTM in September 2012 a short visit of NFMC staff to Newcastle was arranged for December 2012. Unfortunately due to weather conditions at airports this visit had to be postponed for 2013.

The management overview of project tasks, results, goals and impacts, estimated that overall project achievement was above 95%. This result was accomplished with approximately 90% of project financial resources which rates the NANOTECH FTM project as successful and cost effective.

#### **4.2.3 T6.3 - The second PAC MEETING**

The second meeting of the Project Advisory Committee (PAC) was held in Belgrade, on 30<sup>th</sup> of November 2010. The meeting was scheduled in the afternoon after the closure of the Workshop **Processing of Nanostructured Ceramics, Polymers, and Composites**. The following participants attended the PAC meeting.

##### **PAC members:**

- Prof. Dr Jose Kenny from *European Centre for Nanostructured Polymers, Italy, (ECNP)*,
- Prof. Dr Ion Mihailescu from *National Institute for Lasers, Plasma and Radiation Physics, Romania, (NILPRP)*,
- Dr Ivan Stamenkovic (experienced incoming scientist) in place of Dr Velimir Radmilovic.

##### **Representatives of networking partner institutions:**

- Dr Eriks Palcevskis from *Riga Technical University, Institute of Inorganic Chemistry, Latvia*

##### **NANOTECH FTM members, PC and WPL:**

- Prof. Djordje Janackovic PC
- Prof. Petar Uskokovic WP1
- Prof. Bojana Obradovic WP5

##### **PROGRAM**

1. Evaluation of the overall quality, organization, and impacts of the Workshop
2. Setting dates and recommendations for the second workshop and the conference that should be held during 2011 and 2012, respectively
3. Plans for visits and trainings of young scientists during 2011
4. Analysis of possibilities for proposals of new scientific projects

1. Overall, the Workshop was regarded as very successful, well organized and attended by 60 to 80 attendees at all times. Prof. Dr Mihailescu stressed the fact that all main domestic research groups working in the field of nanomaterials and nanotechnology gathered at the Workshop. This may indicate improvements in scientific integration at the national level especially important for small countries with fragmented research infrastructure. Prof. Dr Kenny noted that the next workshop could be further expanded by broader involvement of representatives from industry. It was decided that the next workshop is announced through the Centre of excellence, with the particular aim to attract companies interested in working and investing in Serbia.

2. Second half of October was regarded as a suitable time period for organization of the next workshop in 2011. The same period was also regarded as suitable for organization of the conference in 2012 as well as the early spring time. Definite time periods for these two events will be decided by the end of January 2011.

3. During 2011, several visits to partner institutions and trainings of young scientists are planned. It was decided that the schedule, aims and program of each visit will be carefully planned at least a month before the trip.

It was decided that representatives of FTM will visit the University in Perugia, Italy, during February 2011 and later on Institute of Ceramics in Madrid, Spain. Next, young scientists from FTM will be trained

to use different equipment in the National Institute for Lasers, Plasma and Radiation Physics, Romania. Finally, collaborative scientific studies will be continued at the Riga Technical University, Latvia.

4. It was decided to explore possibilities for submitting a collaborative project proposal for Intereg Umbria – networks of regions of knowledge.

#### **4.2.4 T6.3 - The third PAC MEETING**

The third meeting of the Project Advisory Committee (PAC) was held in Belgrade, on 25<sup>th</sup> of October 2011. The meeting was scheduled in the afternoon after the closure of the Workshop ***Characterization, properties and applications of nanostructured ceramics, polymers and composites***. The following members attended the PAC meeting.

##### **PAC members present:**

- Dr Luca Valentini from *European Centre for Nanostructured Polymers, Italy, (ECNP)* in place of Prof. Dr Jose Kenny who couldn't attend,
- Dr Velimir Radmilovic, experienced incoming scientist NFMC FTM UB.

##### **Other attendants:**

- Prof. Djordje Janackovic (PC),
- Prof. Petar Uskokovic (WPL),
- Prof Bojana Obradovi (WPL).

##### **Representatives of networking partner institutions:**

- Dr Eriks Palcevskis from *Riga Technical University, Institute of Inorganic Chemistry,*

##### **Absence:**

- Prof. Dr Ion Mihailescu from *National Institute for Lasers, Plasma and Radiation Physics, Romania, (NILPRP)* couldn't attend,
- Dr Jacques Werckmann from *Institut de Physique et Chimie des Materiaux de Strasbourg, France, (IPCMS)* in the meantime retired and his replacement from ICPMS Dr Ovidiu Ersen couldn't attend.

##### **PROGRAM**

5. Evaluation of the overall quality, organization, and impacts of the second Workshop
6. Setting dates and recommendations for the conference that should be held during 2012
7. Current status and plans for visits and trainings of young scientists during 2012
8. Analysis of possibilities for proposals of new scientific projects

1. Overall, the Workshop was regarded as successful, well organized and attended by 40 to 50 attendees at all times.

2. It was decided that the conference should be announced latest early spring 2012 and held in September.

3. It was agreed that exchange of know-how and especially training visits for NFMC young researchers are behind schedule and that this activity should be accelerated in 2012. Institutions as: NILPRP, ECNP, IPCMS and AUA are foreseen as main partners to speed up activities of WP1. During 2012, at least 20 visits to partner institutions and trainings of young scientists are planned. It was decided that the schedule, aims and program of each visit will be carefully planned at least a month before the trip.

4. It was decided to explore possibilities for submitting several collaborative project proposals with AUA, ECNP and NILPRP.

#### **4.2.5 T6.3 - The fourth and final PAC MEETING**

The final meeting of the Project Advisory Committee (PAC) was held in Belgrade, on 26<sup>th</sup> of September 2012. The meeting was scheduled in the afternoon after the closure of the first day of the Conference *NANO Belgrade 2012*. The following members attended the PAC meeting.

**PAC members present:**

- Prof.Dr Jose Kenny from *European Centre for Nanostructured Polymers, Italy, (ECNP)*,
- Prof.Dr Ion Mihailescu from *National Institute for Lasers, Plasma and Radiation Physics, Romania, (NILPRP)*,
- Dr Ovidiu Ersen from *Institut de Physique et Chimie des Materiaux de Strasbourg, France, (IPCMS)*,
- Dr Velimir Radmilovic, experienced incoming scientist NFMC FTM UB.

**Other attendants:**

- Prof. Djordje Janackovic (PC),
- Prof. Petar Uskokovic (WPL),

**Representatives of networking partner institutions:**

- Dr Eriks Palcevskis from *Riga Technical University, Institute of Inorganic Chemistry*,

**PROGRAM**

1. Evaluation of the overall quality, organization, and impacts of the Conference
  2. Overall evaluation of the FP7 NANOTECH FTM project
  3. Continuation of NFMC activities within perspectives of ERA
  4. Future collaboration with Networking partners
  5. Final PAC report
- 
1. Overall, the Conference was regarded as successful, well organized and attended by 50 to 70 attendees at all times.
  2. It was concluded that NANOTECH FTM project was successful in strengthening the NFMC overall research capacity in all its aspects. Exchange of know how and experience, increased human potential, improved material resources and increased visibility within ERA were all positively assessed.
  3. It was agreed that collaboration should continue especially within ERA and also through other forms of research cooperation (NATO projects, bilateral projects, EUREKA etc.).
  4. It was decided to continue collaboration in research and joint project proposals. It was noted that exchange activities with P&G and Veolia were incomplete so it was advised to continue with these activities upon the project completion.
  5. PAC members will compose a report for EU Commission with the help of PC and WPLs. The report will be submitted by the end of month 36.