

Theme:

Promoting of a partnership for FP7 projects in the field of multifunctional advanced composite micro/nano materials

Contract: CEEEX 185/01.08.2006

Contractant Authority: CORINT Program - National Centre of Programs Management

Contractor: INCDIE ICPE-CA, Bucharest

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Program: CEEEX - Excellence Research

Project category: Module III - PROMOTING PROJECTS OF PARTICIPATION IN EUROPEAN AND INTERNATIONAL RESEARCH PROGRAMMES

Project type: P-INT-VIZ

Project's acronym: MNF-ADMAT

Project's duration: 01.08.2006 – 31.07.2008

Involved partners in the project:

Coordinator: INCDIE ICPE-CA Bucharest

Thematic fields:

- Nanosciences, Nanotechnologies
- Materials
- New Productions

Technological platform:

- Advanced Materials and Technologies

General objective:

The formation of a scientific network with a multidisciplinary team at the European level, having a long term activity developed in the field of composite multifunctional advanced materials with metallic/polymeric matrix doped with Ag/Cu/Zn nanopowders with applications in electrical engineering/medicine.

The increasing of the visibility and international representation of the Romanian scientific community and research programs in this field for the correlation and integration in European research programs is carried out by the following activities:

- highlighting of the competence and research potential existent both in Romania and abroad, as a result of the experience gained in this field by the specialists involved in the national and international programs that are finished or in progress, in which remarkable results were obtained;
- performing of work visits of some scientific personalities and distinguished researchers;
- experience exchange in the approached fields;
- research trainings;
- attendances at meetings for the project elaboration;
- attendances at national and international conferences in the project's thematic;

- elaboration of a FP7 project.

Project's accomplishment:

- elaboration of a project proposal and its submission in the 7th Framework Program within Theme 4 – Nanosciences, Nanotechnologies, Materials and New Production Technologies - NMP

Realization scheme of the project / Time schedule:

2006 – Stage I – Phase 1: Promoting of the project's thematic in the scientific community from country and abroad. Time period: 01.08.2006 – 30.11.2006.

2007 – Stage II - Phase 2: European visibility increasing for the Romanian researches that are in correlation to the program's priority directions. Time period: 01.12.2006 – 29.06.2007.

2007 – Stage II - Phase 3: Preliminary preparation of a FP7 project proposal. Time period: 30.06.2007 – 30.11.2007.

2008 – Stage III - Phase 4: Definitive of the FP7 project proposal. Time period: 01.12.2007 – 31.07.2008.

Potential users:

- producers of specific products for electrical engineering and medicine;
- producers of consumer goods.

Scientific, technical, economical and social impact:

- formation of a long lasting and efficient multidisciplinary partnership, at the European level, in a high-tech and priority field in the European research;
- efficient capitalization of the Romanian research ability in the aimed field;
- elaboration of new techniques for obtaining of some polifunctional advanced materials with wide applications in social life;
- increasing of the rate of materials production with applications in electrical engineering and medicine;
- increasing of the quality and competence of the Romanian research and of the realized products in this activity;
- managing of the Romanian research to the cheaper and more efficient medical products that will lead to the diminishing of the expenses for hospitalization and medical care in the human and veterinary field;
- promotion of the researches for obtaining of some ecological products;
- dissemination on a large scale of the results: published and communicated scientific papers, organization of workshops, participation at national and international fairs, exhibitions and brokerages;
- increasing of the skills of the involved specialists;
- creation of new specializations in the materials science faculties;
- increasing of new work places;
- enhancement of the life quality and of the comfort degree in the social community.

Experience gained in this field:

Contract CEEEX 26/2005 - „Multifunctional advanced materials doped with silver nanopowders”

2006 – Stage I/Phase 1 on 30.11.2006

Promoting of the project's thematic in the scientific community from country and abroad

Phase's objectives:

- 1.1 Support preliminary activities
- 1.2. Elaboration of the web page on project's thematic to communicate among partners and to cointerest European partners
- 1.3. Work meetings to constitute a consortium at national level
- 1.4. Meetings with specialists from the field of multifunctional composite micro/nano materials to constitute the consortium at European level
- 1.5. Establishing of a schedule for training of some Romanian researchers in partners' institutions
- 1.6. Participation at work meetings at the headquarters of the partners' institutions from the country and abroad
- 1.7. Acquiring of R&D equipment
- 1.8. Elaboration of phase report

Results:

- preparation and submission of letters of request for collaboration for partners from the country and abroad;
- organizing of a Round Table on 17.11.2006 at the Institute of Macromolecular Chemistry "P. Poni" Iassy, in order to promote the project and its thematic to scientific community in the country, attended by 21 researchers, academics and doctors from research institutes, universities and " St. Spiridon" Hospital from Iassy;
- organizing of a Round Table on 23.11.2006 at the headquarter of INCDIE ICPE-CA Bucharest in order to promote the project and its thematic to scientific community in the country, attended by 19 researchers from research institutes;
- creating the project's web page, according to the page accessed for the CEEX projects;
- participation of four Romanian specialists from INCDIE ICPE-CA at two national and international conferences to communicate some scientific papers in the project's field;
- participation at Research Fair from TIB 2006, Bucharest, during 3 - 7.10.2006, with models and catalogue of products made as a result of the researches from the CEEX-MATNANTECH project no. 26/2005 in the field of Ag colloidal sols synthesis and composite materials doped with Ag nanoparticles;
- training of 7 researchers from INCDIE ICPE-CA at its headquarter, during 13 - 14.11.2006, at 90 Plus Brookhaven apparatus for determining particle size and zeta potential of colloidal solutions of nanoparticles, performed by two specialists from the ANKERSMID company from Belgium;
- elaboration of the database of interested partners;
- elaboration of the training schedule of some Romanian researchers;
- acquisition of a R&D equipment: 90 Plus Brookhaven apparatus for determining particle size and zeta potential of colloidal solutions of nanoparticles;
- elaboration of phase reports.

Indicators of phase's accomplishment:

- organisations and respectively number of research personnel involved in the project:
 - organisations types: 1 INCD

- no. of researchers / project: 15
- published papers: 4
- posters: 3
- scientific communications: 3
- web page: 1

Conclusions:

The phase's objectives foreseen in the project's realization plan were fulfilled entirely.

2007 – Stage II/Phase 2 on 29.06.2007

European visibility increasing for the Romanian researches that are in correlation to the program's priority directions

Phase's objectives:

- 2.1. Updating the web page on the project's thematic to communicate among partners and to involve new partners
- 2.2. Invited lessons presented by renowned specialists from the country and abroad
- 2.3. Participation of the Romanian specialists at national and international conferences to communicate some scientific papers in the project's field
- 2.4. Training of some Romanian researchers in partners' institutions
- 2.5. Elaboration of phase report

Results:

- **updating the project's web page** according to the page accessed for the CEEX projects;
- **organizing** by INCDIE ICPE-CA on 26.02.2007 at its headquarter **of a Workshop** entitled "Promoting of a partnership for FP7 projects in the field of the multifunctional advanced composite micro/nano materials";
- inviting a renowned specialist at the Workshop on 26.02.2007: **Prof. Dr. Aharon Gedanken** from Bar Ilan University, Head of "Kanbar Laboratory for Nanomaterials" of the "Center for Advanced Materials and Nanotechnology" from Ramat Gan - Israel;
- **two invited lessons** concerning new techniques of nanoparticles synthesis, and their applications, at the Workshop on 26.02.2007, presented by Prof. Dr. Aharon Gedanken from Bar Ilan University from Israel: "**Novel methods (sonochemistry, microwave dielectric heating, sonoelectro-chemistry, and RAPET) for the fabrication of nanomaterials**" and "**Applications of nanomaterials fabricated by new methods**";
- contributions to the formation of two partnerships at the international level in order to achieve two FP7 project proposals:
 - in the call **FP7 NMP-2007 1.2.-1** Large scale projects integrating "**Pilot lines to study, develop and up-scale nanotechnology - based processes from laboratory**", acronym PILOT (proposed by Bar Ilan University from Israel)
 - in the FP7 call **NMP-2007 2.1.1**. Nanostructured polymer-matrix composites "**New multifunctional composite materials with silver nanoparticles having high performances for health care products**," acronym: COMASILV (proposed by INCDIE-ICPE-CA Bucharest);
- participation of 13 Romanian specialists from INCDIE ICPE-CA at two national and three international conferences in order to communicate some scientific papers in the project's field;
- participation in the **55th World Exhibition and Innovation, Research and New Technology**“, **EUREKA!**, Brussels, Nov. 2006 and winning of a gold medal for a patent in project's thematic;
- making a **working visit and training of two researchers** from INCDIE ICPE-CA Bucharest at Polymers Synthesis Laboratories and Analyses Laboratories from the Institute of Macromolecular Chemistry "P. Poni" Iassy, as a partner in joint projects (a CEEX project and two FP7 projects);
- elaboration of phase reports.

Indicators of phase's accomplishment:

- organisations and respectively number of research personnel involved in the project:
 - organisations types: 1 INCD
 - no. of researchers / project: 13
- integrated technological platforms developed at program level: 1
- published papers: 6
- posters: 7
- scientific communications: 10
- web page: 1
- work visits and long term probations of some scientific renowned specialists from abroad: 1
- new created partnerships: 2

Conclusions:

The phase's objectives foreseen in the project's realization plan were fulfilled entirely.

2007 – Stage II/Phase 3 on 30.11.2007

Preliminary preparation of a FP7 project proposal

Phase's objectives:

- 3.1. Updating the web page on the project's thematic to communicate among partners and to involve new partners
- 3.2. Invited lessons presented by renowned specialists from the country and abroad
- 3.3. Participation of the Romanian specialists at national and international conferences to communicate some scientific papers in the project's field
- 3.4. Work meetings of the consortium to prepare preliminary a FP7 project proposal at the headquarters of the partners' institutions in the country and abroad
- 3.5. Elaboration of phase report

Results:

- **updating the project's web page** according to the page accessed for the CEEX projects;
- **organizing** by INCDIE ICPE-CA during 17 - 18.10.2007 at its headquarter **of a Workshop** entitled "Promoting of the partnership in the field of biomaterials";
- inviting a renowned specialist at the Workshop of 17 - 18.10.2007: **Prof. Dr. Mieczyslaw Jurczyk**, director of the Institute of Materials Science and Engineering, Poznan, Poland, who presented an invited lesson;
- **organizing** by INCDIE ICPE-CA on 27.11.2007 at its headquarter **of a Workshop** entitled "Tendencies in Biomaterials for Tissue Reconstructions and Health Care Products";
- inviting two renowned specialists at the Workshop on 27.11.2007: **Dr. Massimo Perucca**, Director of Clean NT Centre from **ENVIPARK Italy** and **Prof. Dr. Christian Grandfils**, Director of Biomaterials Centre (CEIB) from **Liege University, Belgium**, who presented the following invited lessons: "**Eco-efficient plasma processes for biomedical surface functionalisation**" presented by **Dr. Massimo Perucca** from **ENVIPARK Italy** and "**Functionalized biodegradable polyesters for medical/pharmaceutical applications**", presented by **Prof. Dr. Christian Grandfils** from **Liege University, Belgium**;
- **participation of INCDIE ICPE-CA Bucharest as a partner at two FP7 project proposals:**
 - in the call **FP7 NMP-2007-1.2.1 – Pilot lines to study, develop and up-scale nanotechnology based processes from laboratory:**
 - project's type: Collaborative Project/Large-scale integrating project;
 - proposal's title: "**Pilot lines to study, develop and up-scale nanotechnology – based processes from laboratory**", acronym **PILOT**;
 - Coordinator: **Prof. Dr. Aharon Gedanken** from **Bar Ilan University, Israel**;
 - registration number of project proposal: **212359**, submitted on 04.05.2007
(*The project proposal no. 212359 did not pass in the stage II of evaluation*)
 - in the call **FP7 NMP-2007-2.1.1. Nanostructured polymer-matrix composites:**
 - project's type: Collaborative Project/Large-scale integrating project;
 - proposal's title: "**New multifunctional composite materials with silver nanoparticles having high performances for health care products**", acronym: **COMASILV**;

- Coordinator: **Dr. Massimo Perruca from Clean NT Lab of Environment Park S.p.A (Envipark), Italy;**
- registration number of project proposal: **214213**, submitted on 04.05.2007
(The project proposal no. 214213 was evaluated in stage II, but obtained 10.5 points from min. 11 points requested for admission and it has not been approved for contracting)
- **a working meeting** (project no. 228359, acronym: NANOBIOMED) between specialists from INCDIE ICPE-CA Bucharest, Romania, and Prof. Dr. Mieczyslaw Jurczyk, director of the Institute of Materials Science and Engineering, Poznan, Poland in the Workshop "Promoting of the partnership in the field of biomaterials ", organized by INCDIE ICPE-CA, at its offices, during 17 - 18.10.2007, in order to develop the project proposal: NANOBIOMED;
- **a working meeting** (project no. 212359, acronym: COMASILV) organized by Dr. Massimo Perucca at the Environment Park headquarter in Turin, Italy, during 6 - 7.09.2007, attended by 19 partners from the consortium;
- **a working meeting** (project no. 229367, acronym: NANOTHERA) organized by INCDIE ICPE-CA, at its headquarter in the Workshop on 27.11.2007: "Tendencies in Biomaterials for Tissue Reconstructions and Health Care Products", attended by 3 partners of the consortium;
- participation of 9 Romanian specialists from INCDIE ICPE-CA at four national and two international conferences in order to communicate some scientific papers in the project's field;
- **training of two researchers** from INCDIE ICPE-CA at the **Summer School on "Nanosciences & Nanotechnologies" NN07** from **Thessaloniki, Greece**, during 14 – 20.07.2007;
- elaboration of phase reports.

Indicators of phase's accomplishment:

- organisations and respectively number of research personnel involved in the project:
 - organisations types: 1 INCD
 - no. of researchers / project: 7
- published papers: 7
- posters: 4
- scientific communications: 11
- web page: 1
- work visits and long term probations of some scientific renowned specialists from abroad: 2
- project proposals submitted to international programs: 2
- new created partnerships: 2
- formation of specialized personnel: 2

Conclusions:

The phase's objectives foreseen in the project's realization plan were fulfilled entirely.

2008 – Stage III/Phase 4 on 31.07.2008

Definitive of the FP7 project proposal

Phase's objectives:

- 4.1. Updating the web page on the project's thematic to communicate among partners
- 4.2. Work meetings of the consortium to prepare a FP7 project proposal
- 4.3. Joint elaboration of the project proposal according to the European norms
- 4.4. Establishment of intellectual property rights
- 4.5. Elaboration of phase report

Results:

- **updating the project's web page**
- **a working meeting** (project no. 212359, acronym: PILOT) between specialists from INCDIE ICPE-CA Bucharest, Romania and Prof. Aharon Gedanken from Bar Ilan University, Israel, in the Workshop: "Promoting of a partnership for FP7 projects in the field of the multifunctional advanced composite micro/nano materials", organized by INCDIE ICPE-CA Bucharest, at its headquarter, on 26.02.2007, in order to develop the project proposal: PILOT;
- **a working meeting** (project no. 212359, acronym: COMASILV) organized by Dr. Massimo Perucca at the Environment Park headquarter in Turin, Italy, during 6 - 7.09.2007, attended by 19 partners from the consortium;
- **a working meeting** (project no. 228359, acronym: NANOBIOMED) between specialists from INCDIE ICPE-CA Bucharest, Romania, and Prof. Dr. Mieczyslaw Jurczyk, director of the Institute of Materials Science and Engineering, Poznan, Poland in the Workshop "Promoting of the partnership in the field of biomaterials ", organized by INCDIE ICPE-CA, at its offices, during 17 - 18.10.2007, in order to develop the project proposal: NANOBIOMED;
- **a working meeting** (project no. 229367, acronym: NANOTHERA) organized by INCDIE ICPE-CA, at its headquarter in the Workshop on 27.11.2007: "Tendencies in Biomaterials for Tissue Reconstructions and Health Care Products", attended by 3 partners of the consortium;
- **organizing** by INCDIE ICPE-CA on 01.07.2008 at its headquarter **of a Round Table** entitled "Research and achievements in the field of advanced materials multifunctional doped with silver nanoparticles;
- **a working meeting** (project no. 229367, acronym: NANOTHERA) organized by INCDIE ICPE-CA, at its headquarter in the Round Table on 1.07.2008: "Research and achievements in the field of advanced materials multifunctional doped with silver nanoparticles", attended of 2 partners of the consortium;
- **participation of INCDIE ICPE-CA Bucharest as a partner at two FP7 project proposals:**
 - in the call **FP7 NMP-2008- SMALL-2:**
 - project's type: **Collaborative Project/Focused research project;**
 - proposal's title: **"Nanotechnological approach for the production of novel Ti-based nanocomposite biomaterials for medical applications"**, acronym **NANOBIOMED;**
 - Coordinator: **Prof. Dr. Mieczyslaw Jurczyk, General Director of Institute of Materials Science and Engineering, Poznan, Poland;**

- registration number of project proposal: **228359**, submitted on 29.02.2008
(*The project proposal no. 228359 did not pass in the stage II of evaluation*)
- in the call **FP7 NMP-NMP-2008-LARGE-2 (NMP-2008-4.0-1) Development of Nanotechnology-based systems for diagnosis and/or therapy for diabetes, musculo-skeletal or inflammatory diseases:**
 - project's type: **Collaborative Project/Large-scale integrating project;**
 - proposal's title: **"NANOSYSTEM THERAPY for inflammatory and muscular-skeletal diseases"**, acronym: **NANOTHERA;**
 - Coordinator: **Dr. Christian Grandfils – University of Liège, Center of Biomaterials, Belgium;**
 - registration number of project proposal: **229367**, submitted on 06.03.2008.
(*The project proposal no. 229367 did not pass in the stage II of evaluation*)
- intellectual property rights were established only for the FP7 project proposals, which were submitted in stage II of evaluation (proposal no. 212359, acronym COMASILV at point 3. Impact - 3.2 Dissemination and / or exploitation of project results, and management of intellectual property in Annex IV NMP - Form B), under normative in force;
- participation of 3 Romanian specialists from INCDIE ICPE-CA at a national and two international conferences to communicate some scientific papers in the project's field;
- granting the title of Doctor of Materials Science and Engineering to Dipl. Eng. Magdalena Lungu-Valentina as a result of public presentation of the doctoral thesis "Contributions Concerning the Obtaining of Some New Types of Ag-SnO₂ Electrical Contacts for Low Voltage Switching Devices" at the Technical University of Cluj-Napoca on 28.06.2008;
- submission to OSIM of three patent applications having the thematic in the project's field;
- elaboration of phase reports.

Indicators of phase's accomplishment:

- organisations and respectively number of research personnel involved in the project:
 - organisations types: 1 INCD
 - no. of researchers / project: 10
- proposed patents: 3
- published papers: 6
- posters: 5
- scientific communications: 11
- web page: 1
- project proposals submitted to international programs: 2
- new created partnerships: 2
- formation of specialized personnel: 1

Conclusions:

The phase's objectives foreseen in the project's realization plan were fulfilled entirely.