

Report

Project no. **INCO-CT-2006-026283-OPSA**

Project title:

**Centre of Excellence for Optical Spectroscopy Applications in Physics, Material
Science and Environmental Protection**

Appendix F:

**FINAL PLAN OF USING AND DISSEMINATING THE
KNOWLEDGE**

The objective of the Dissemination Plan is to identify and organize the activities to be performed in order to promote the commercial exploitation of the project's results and the widest dissemination of knowledge from the project. The plan is expanded in two directions: towards the marketing activities in order to enhance the commercial potential of the system and towards the notification of project's results in the scientific, and general Research and Technological Development sector. In order to establish an infrastructure for communications with all potential users we considered training events, such as:

- conferences, workshops, academic courses, meetings, ...and
- products, such as:
 - reports, journal articles, a vignette (graphic identity), booklet, and website,
 as the primary tools that should reach our dissemination goals with certain target audiences.

A. Now days, the **worldwide web** is the most effective mechanisms for disseminating materials. For the OPSA project we have made a web site, just at the beginning of duration of the project, which purpose was to present the goals and resources of the Centre for Solid State Physics and New Materials of Institute of Physics as the Centre of Excellence for Optical Spectroscopy Applications in Physics, Material Science and Environmental Protection. The web site is located at web site of our centre, but it is made as a completely independent web site. It is easily accessible at <http://www.solid.phy.bg.ac.rs/opsa>.

Besides our technical, human and knowledge potentials, the OPSA project Web site includes:

- information about OPSA and its activities including contact details, background information, working papers, events (seminars, workshops, conferences) etc.
- manual instructions of experimental set-ups (the web in this respect acts as a principal means of publication);
- frequent news and updates to keep the community informed

B. Contact and exchange of information can be maintained and facilitated by **electronic mailing**, also. We have organized an **internal list** for internal project communication, which includes all members of project team and an **external list** to communicate to the wider community.

C. We have developed a publications programme (image identity, booklet, scientific publications, and calendar) in order to raise awareness about OPSA and its activities and potentials:

1) **Image identity of OPSA Project** is based on dispersion of light through optical prism, from one side and geographical position of Belgrade, which is situated at the point where river Sava flows into the Danube (see Header), from the other side. A typical logo is designed to cause immediate recognition by the viewer. We believe that OPSA logo fulfil this role.

2) **Booklet about OPSA** (appendix G). The OPSA project booklet shortly presents our mission and strategy, current projects, as well as, our resources, abilities and potentials.

3) **Papers published in scientific journals.**

OPSA encourages its researchers to publish actively in distinguished international journals and to present papers at international meetings. Copies of these publications are given in appendix H.

Papers published in scientific journals:

1. **Z. V. Popović, Z. Dohčević-Mitrović, M. J. Konstantinović, M. Šćepanović**
Raman scattering characterization of nano-powders and nano-wires (rods)
Journal of Raman Spectroscopy **38**, 750 (2007).
2. **Z.V. Popović, A. Milutinović, N. Romčević**
Spin-assisted photoluminescence of polycrystalline α -MnSe
J. Luminescence **128** (2008) 142-146.
3. **Z. V. Popović, Z. Dohčević-Mitrović, A. Cros and A. Cantarero**
Raman scattering study of the anharmonic effects in CeO₂ nanocrystals
Journal of Physics: Condensed Matter **19** (2007) 496209 (9pp)
4. **R. Kostić, S. Aškrabić, Z. Dohčević-Mitrović, Z.V. Popović**
Low-frequency Raman Scattering from CeO₂ Nanoparticles
Applied Physics A **90**, 679-83 (2008).
5. **Z. Dohčević-Mitrović, M. Radović, M. Šćepanović, M. Grujić-Brojčin, Z. V. Popović, B. Matović and S. Bošković**
Temperature-dependent Raman study of Ce_{0.75}Nd_{0.25}O_{2-δ} nanocrystals
Applied Physics Letters **91** 203118 (2007).
6. **M. Radović, Z. Dohčević-Mitrović, M. Šćepanović, M. Grujić-Brojčin, B. Matović, S. Bošković, Z. V. Popović,**
Raman study of Ba-doped ceria nanopowders
Science of Sintering **39** (2007) 281-286.
7. **M. Šćepanović, M. Grujić-Brojčin, Z. Dohčević-Mitrović, K. Vojisavljevic, T Sreckovic, Z. V. Popović**
The effects of Nonstoichiometry on optical properties of oxide nanopowders
Acta Physica Polonica A, **112** (2007) 1013.
8. **S. Aškrabić, R. Kostić, Z. Dohčević-Mitrović, Z.V. Popović**
Raman scattering from low-frequency phonons confined in CeO₂ nanoparticles
Journal of Physics: Conference Series **92** (2007) 012042.
9. **Z. Dohčević-Mitrović, Z.V. Popović and M. Šćepanović**
Anharmonicity Effects in Nanocrystals Studied by Raman Scattering Spectroscopy
Acta Physica Polonica **A116** (2009) 36
10. **M. Grujić-Brojčin, M.J. Šćepanović, Z.D. Dohcević-Mitrović and Z.V. Popović**
Use of Phonon Confinement Model in Simulation of Raman Spectra of Nanostructured Materials
Acta Physica Polonica **A116** (2009) 51
11. **R. Kostić**
Raman Scattering from Acoustic Phonons Confined in Spherical Nanoparticles
Acta Physica Polonica **A116** (2009) 62
12. **M. Radović, Z. Dohčević-Mitrović, N. Paunović, M. Šćepanović, B. Matović and Z.V. Popović** *Effect of Fe²⁺ (Fe³⁺) Doping on Structural Properties of CeO₂ Nanocrystals*
Acta Physica Polonica **A116** (2009) 84

13. M. Šćepanović, S. Aškračić, M. Grujić-Brojčin, A. Golubović, Z. Dohčević-Mitrović, A. Kremenović and Z.V. Popović

Low Frequency Raman Spectroscopy of Pure and La Doped TiO₂ Nanopowders Synthesized by Sol Gel Method
Acta Physica Polonica **A116** (2009)99

14. S. Askrabic, Z. D. Dohcevic-Mitrovic, M. Radovic, M. Scepanovic, Z. V. Popovic,

Phonon-phonon interactions in Ce_{0.85}Gd_{0.15}O_{2-δ} nanocrystals studied by Raman spectroscopy
JOURNAL OF RAMAN SPECTROSCOPY **40** (2009): 650-655

15. M. J. Šćepanovic, M. Grujic-Brojcjin, Z. D. Dohcevic-Mitrovic and Z. V. Popovic

Characterization of Anatase TiO₂ Nanopowder by Variable-Temperature Raman Spectroscopy
Science of Sintering, 41 (2009) 67-73

16. A. Golubovic, M. Šćepanovic, A. Kremenevic, S. Aškračić, V. Berec, Z. Dohcevic-Mitrovic, and Z. V. Popovic

Raman study of the variation in anatase structure of TiO₂ nanopowders due to changes of sol-gel synthesis conditions
J. Sol-Gel Sci Technol 49 (2009) 311-319

17. M. Šćepanović, S. Aškračić, V. Berec, A. Golubović, Z. Dohčević-Mitrović, A. Kremenović and Z.V. Popović

Characterization of La-Doped TiO₂ Nanopowders by Raman Spectroscopy
Acta Physica Polonica A 115 (2009) 771.

Papers presented at scientific conferences:

1. B.Matovic, S.Boskovic, J. Dukic, Z.Dohcevic-Mitrovic, M. Radovic, Z. V. Popovic

Raman Study of Ba-doped Ceria Nanopowders
Proc. 10th EcerS Conf.Goller Verlag, Baden-Baden,2007,p1557-59

2. M. Radović, Z. D. Dohčević-Mitrović, M. Šćepanović, M. Grujić-Brojčin, B. Matović, S. Bošković and Z. V. Popović:

Raman study of Ba-doped ceria nanopowders
Physics and Technology of Materials – FITEM07, Session 1, August 2007, Čačak, Serbia

3. Z. D. Dohčević-Mitrović, Z. V. Popović, M. J. Šćepanović, M. U. Grujić-Brojčin, S. B. Bošković, B. M. Matović, and M. Radović:

Raman study of anharmonicity and phase separation in Ce_{0.85}Gd_{0.15}O_{2-y} nanopowder
International Conference on Structural Analysis of Advanced Materials – ISCAM 2007, Book of abstracts 103, September 2007, Patras, Greece

4. S. Aškračić, Z. Dohčević-Mitrović, M. Radović, M. Šćepanović, M. Grujić-Brojčin, B. Matović and Z. V. Popović:

Raman study of oxygen vacancy behaviour in ceria nanopowders doped with Nd, Y and Gd
1st International conference from Nanoparticles & Nanomaterials to Nanodevices & Nanosystems – IC4N, Book of abstracts 83, June 2008, Halkidiki, Greece.

5. Z. Dohčević-Mitrović, N. Lazarević, S. Aškračić, M. Mirić, M. Radović, M. Šćepanović, Z. V. Popović:

Raman and spectroscopic ellipsometry study of defect states in Ce_{0.85}Gd_{0.15}(Y)O_{2-δ} nanocrystals
Proc. Nanotec 2009.it, March 2009, Rome, Italy.p.114-115

6. N. Paunovic, M. Radovic, Z. Dohčević-Mitrović, B. Matović, and Z. V. Popović:

Room temperature ferromagnetism in pure and Fe²⁺(Fe³⁺) doped nanocrystalline CeO₂,
Proc. Int. Conf. on material science and engineering (BRAMAT), p.KN6.02, Brasov, Romania, 2009.

7. M. Šćepanović, V. Berec, S. Aškrabić, A. Golubović, Z. Dohčević-Mitrović, A. Kremenović and Z. V. Popović

Raman spectroscopy of anatase TiO₂ nanopowders doped with various contents of La³⁺

15th Central European Workshop on Quantum Optics CEWQO 2008, June 2008, Belgrade, Serbia, Book of abstracts, p. 90.

8. Maja Šćepanović, S. Aškrabić, V. Berec, Aleksandar Golubović, Zorana Dohčević-Mitrović i Zoran V. Popović

Temperaturno zavisna Ramanova spektroskopija nanoprahova čistog i lantanom dopiranog anatasa sintetisanih sol-gel metodom

Proc. 52. ETPAH Conf., Jun 2008, Palic – Serbia, p NM 1.3.

9. S. Aškrabić, M. Šćepanović, A. Golubović, Z. Dohčević-Mitrović and Z. V. Popović

Photoluminescence properties of titanium dioxide nanopowders synthesized by sol-gel technology

XIII International Symposium on Luminescence Spectrometry, September 2008, Bologna, Italy, Final program and abstracts book, PO087.

4) OPSA calendar.

The OPSA calendar for year 2008 was realized. It represented our abilities and some of our results obtained with experimental set-ups, which are on our disposal. The calendar was distributed to about 1000 addresses in industry, SME, research, education and development organizations around the world (see appendix K).

D. Conferences, workshops, seminars were organised by the OPSA project to raise awareness about OPSA activities, resources, etc. It is noticeably that we have organized Symposium A: Raman scattering in material science, within EMRS-2008 Fall Meeting, which was in Warsaw on September 15-19th, 2008, see appendix I. The OPSA project coordinator (Prof. Dr Zoran V. Popovic) was chairman of the Symposium, and Dr Zorana Dohcevic-Mitrovic, scientific secretary. OPSA project was one of sponsors. This Symposium summarized actual knowledge in the field of Raman spectroscopy in material science and was the best way to show our possibilities as a Centre of Excellence, as well as, obtained results in nano-material characterization.