



ROMÂNIA
UNIVERSITATEA BABEȘ-BOLYAI CLUJ-NAPOCA

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RECTORATUL

Universitatea Babeș-Bolyai Competiția Excelenței 2010

Dosar individual

Notă: Toate datele se referă la perioada 2005-2009

Nume, prenume, grad did.	BAIA GHEORGHE-LUCIAN, CONF. UNIV. DR.
Facultatea, Catedra	Facultatea de Fizica, Catedra de Fizica Materialelor si a Tehnologiilor Avansate
Domeniul științific	Fizica Materialelor si a Tehnologiilor Avansate
Adresa paginii web personale	www.phys.ubbcluj.ro/~lucian.baia
Adresa e-mail	lucian.baia@phys.ubbcluj.ro

Criteriul I – Output 60% (aplicat la total punctaj Criteriul I – Output)

Total punctaj: 2295.95+190.312+19.769+12.833+0.833+4+65=2588.697

1. Articole științifice publicate în reviste indexate ISI (cu menționare factorului de impact în cazul celor cotate)

19 articole 2295.95 pct

2. Articole științifice publicate în ISI proceedings

2 articole 190.312 pct

In cazul in care nu are Factor de impact ISI

7 articole 19.769 pct

3. Articole științifice publicate în reviste indexate în BDI (din lista CNCSIS) si în reviste românești recunoscute de CNCSIS tip B și B⁺

4 articole 12.833 pct

4. Alte articole științifice/capitole publicate în reviste/volume cu referenți (peer-reviewed)

1 articol 0.833 pct

5. Cărți științifice publicate în edituri internaționale

1 carte 4 pct

6. Cărți științifice publicate în edituri naționale acreditate

3 carti 65 pct

Criteriul II – Prestigiu profesional 30% (aplicat la total punctaj Criteriul II)

Total punctaj: 1140+ 40+ 1800+10+18.086+381.916+27=3417.002

1. Citări ale articolelor ISI listate la Criteriul I

114 citari 1140 pct

2. Alte citări ale lucrărilor listate mai sus

4citari 40 pct

3. Citări în perioada 2005-2009 ale articolelor anterioare anului 2005

180 citari 1800 pct

5. Studenți naționali atrași (activități de coordonare științifică și didactică)

2 lucrari de licenta 6 pct

2 lucrari de disertatie 4 pct

Total 10 pct

9. Participări la programe/granturi de cercetare finanțate din sursă internațională (se menționează și valoarea)

Membru al unui proiect bilateral Ro-Hu 18.086 pct

10. Participări la programe/granturi finanțate din sursă națională (se menționează și valoarea)

Membru in 12 contracte nationale 381.916 pct

12. Coordonări de programe/granturi finanțate din sursă națională (se menționează și valoarea)

Director al unui contract national 27 pct

III. Realizare remarcabilă 10% (aplicat la total punctaj Criteriul III)

(Descrieți într-o manieră cât mai accesibilă (în maximum 1 pagină) cea mai importantă realizare științifică/tehnică/artistică din ultimii 5 ani și impactul acesteia.)

Cea mai importanta realizare stiintifica din ultimii 5 ani consider ca a fost studiul unor materiale compozite cu matrice de sticla cu nanoparticule metalice de argint inglobate, folosind tehnici experimentale complemetare (Raman, IR, UV-vis, TEM) si abordari teoretice derivate din teoria Mie. Rezultatele obtinute au fost publicate in 2 articole stiintifice, *Baia L., Baia M., Kiefer W., Popp J., Simon S., Structural and morphological properties of silver nanoparticles-phosphate glass composites, 2006, Chemical Physics, (1) 63-69* si *Baia L., Muresan D., Baia M., Popp J., Simon S., Structural properties of silver nanoclusters-phosphate glass composites, 2007, Vibrational Spectroscopy, (2) 313-318*, care sunt mentionate si in anexa. Compozitele investigate au apartinut sistemului (100-x) [50P₂O₅·30CaO·20Na₂O]xAg₂O cu $0 \leq x \leq 5$ mol%, iar importanta studierii lor deriva din potentiala lor functionalitate multipla ca biomateriale (pentru regenerarea tesuturilor) cu proprietati antimicrobiene, materiale cu proprietati electrice superioare si materiale cu proprietati optice deosebite utilizate in aplicatii de optica neliniara. In cele doua studii au fost evidentiata atat modificarile structurale induse de prezenta Ag₂O in matricea de sticla prin coroborarea informatiilor obtinute din masuratorile experimentale spectroscopice Raman si IR cat si prezenta, dimensiunea si forma nanoparticulelor de metal nobil utilizand informatiile obtinute din spectrele UV-Vis si simularile teoretice. Utilizarea microscopiei electronice prin transmisie (TEM) a confirmat ipotezele avansate despre particularitatile morfologice ale nanopartilculelor de Ag si in plus a evidentiat prezenta asa numitor clusteri molecularari.

Ca o dovada a impactului pe care l-au avut cele doua publicatii pot mentiona faptul ca acestea au fost citate impreuna de 10 ori, dar as dori sa mentionez in mod special faptul ca aceste studii au fost citate de trei ori intr-o revista cu factor de impact de 6.8 (*Advanced Functional Materials*) si o data intr-o revista cu factor de impact de 4.64 (*Journal of Materials Chemistry*).

Total punctaj = Total punctaj = 0,6 x 2588.697 + 0,3 x 3417.002 + 0,1 x (total punctaj Criteriul III) = 2578.318 + 0,1 x (total punctaj Criteriul III)

Data:

16.03.2010

Semnătura:

Conf. Dr. Lucian Baia

Certific validitatea datelor prezentate

Sef de catedră,

Prof. Dr. Simion Simon

Anexa la Dosarul individual

Notă: Toate datele se referă la perioada 2005-2009

Nume, prenume, grad did.	BAIA GHEORGHE-LUCIAN, CONF. UNIV. DR.
Facultatea, Catedra	Facultatea de Fizica, Catedra de Fizica Materialelelor si a Tehnologiilor Avansate
Domeniul științific	Fizica Materialelelor si a Tehnologiilor Avansate
Adresa paginii web personale	www.phys.ubbcluj.ro/~lucian.baia
Adresa e-mail	lucian.baia@phys.ubbcluj.ro

Criteriaul I – Output 60% (aplicat la total punctaj Criteriaul I – Output)

1. Articole științifice publicate în reviste indexate ISI (cu menționare factorului de impact în cazul celor cotate)

1. Baia, M; Toderas, F; **Baia, L**; Maniu, D; Astilean, S, *Multilayer Structures of Self-Assembled Gold Nanoparticles as a Unique SERS and SEIRA Substrate*, Chemphyschem 10 (2009) 1106-1111.
IF: 3.636 (30/5)x3.636x10= 218.16
2. Popa, M., Diamandescu, L., Vasiliu, F., Teodorescu, C.M., Cosoveanu, V., Baia, M., Feder, M., **Baia, L.**, Danciu, V, *Synthesis, structural characterization, and photocatalytic properties of iron-doped TiO₂ aerogels*, 2009, Journal of Materials Science 44 (2), pp. 358-364
IF: 1.181 (30/9)x1.181x10= 39.366
3. Indrea, E., Dreve, S., Silipas, D.T., Mihailescu, G., Olenic, L., Petru, A., Danciu, V., Cosoveanu, V., Nicoara, A., Muresan, L.E., Popovici, E.J., Popescu, V., Horea-Iustin, N., Tetean, V.R., **Baia G.L.**, Nyari, T., *Semiconductor photoelectrodes for solar of splitting water*, 2008, Journal of Optoelectronics and Advanced Materials, (9) 2213-2222
IF: 0.577 (30/16)x0.577x10= 10.818
4. **Baia, L.**, Baia, M., Danciu, V., Albu, M.G., Coșoveanu, V., Iordăchescu, D., Trandafir, V., *Type I collagen-TiO₂ aerogel based biocomposites*, 2008, Journal of Optoelectronics and Advanced Materials 10 (4), pp. 933-936
IF: 0.577 (30/7)x0.577x10= 24.728
5. Danciu, V., **Baia, L.**, Cosoveanu, V., Baia, M., Vasiliu, F., Diamandescu, L., Teodorescu, C.M., Feder, M., Popp, J., *Photocatalytic and structural properties of mixed titania and zirconia aerogels*, 2008, Optoelectronics and Advanced Materials, Rapid Communications 2 (2), pp. 76-80
IF: 0.224 (30/9)x0.224x10= 7.466
6. Toderas, F; Baia, M; **Baia, L**; Astilean, S, *Controlling gold nanoparticle assemblies for efficient surface-enhanced Raman scattering and localized surface plasmon resonance sensors*, NANOTECHNOLOGY 18 pp. 255702, (2007)
IF: 3.31 (30/4)x3.31x10= 248.25
7. **Baia L.**, Muresan D., Baia M., Popp J., Simon S., *Structural properties of silver nanoclusters-phosphate glass composites*, 2007, Vibrational Spectroscopy, (2) 313-318.
IF: 1.78 (30/5)x1.78x10= 106.8
8. Toderas F., Boca S., Baia M., **Baia L.**, Maniu D., Astilean S., Simon S., *Self-assembled multilayers of gold nanoparticles as versatile platforms for molecular sensing by Fourier transform-surface enhanced scattering (FT-SERS) and surface enhanced infrared absorption (SEIRA)*, 2007, Journal of Optoelectronics and Advanced Materials, (3) 625-628.
IF: 0.827 (30/7)x0.827x10= 35.442
9. **Baia L.**, Baia M., Peter A., Cosoveanu V., Danciu V., *Evaluating the thermal treatment parameters effect on the anatase nano crystallites size of titania aerogels*, 2007, Journal of Optoelectronics and Advanced Materials, (3) 668-671
IF: 0.827 (30/5)x0.827x10= 49.62
10. Baia, M; Toderas, F; **Baia, L**; Popp, J; Astilean, S, *Probing the enhancement mechanisms of SERS with p-aminothiophenol molecules adsorbed on self-assembled gold colloidal nanoparticles*, CHEM PHYS LETT 422 (2006) 127-132.
IF:2.462 (30/5)x2.462x10= 147.72

11. Baia, M; **Baia, L**; Astilean, S; Popp, J, *Surface-enhanced Raman scattering efficiency of truncated tetrahedral Ag nanoparticle arrays mediated by electromagnetic couplings*, Appl Phys Lett 88 (2006)
IF:3.977 (30/4)x3.977x10= 118.623
12. **Baia, L**; Baia, M; Popp, J; Astilean, S, *Gold films deposited over regular arrays of polystyrene nanospheres as highly effective SERS substrates from visible to NIR*, J Phys Chem B 110 (2006) 23982-23986.
IF: 4.115 (30/4)x4.115x10= 308.625
13. **Baia L.**, Baia M., Kiefer W., Popp J., Simon S., *Structural and morphological properties of silver nanoparticles-phosphate glass composites*, Chemical Physics, (1) (2006) 63-69.
IF: 1.984 (30/5)x1.984x10= 119.04
14. **Baia L.**, Peter A., Cosoveanu V., Indrea E., Baia M., Popp J., Danciu V., *Synthesis and nanostructural characterization of TiO₂ aerogels for photovoltaic devices*, Thin Solid Films 511-512 (2006) 512-516
IF:1.66 (30/7)x1.66x10= 71.142
15. Simon, S., **Baia, L.**, Radu, A., *Vibrational and EPR spectroscopic investigation of heavy-metal-oxide glasses and vitroceraamics containing manganese*, 2006, Journal of Raman Spectroscopy 37 (1-3), pp. 183-188
IF: 2.133 (30/3)x2.133x10=213.3
16. Radu A., **Baia L.**, Kiefer W., Simon S., *The influence of manganese cations on the structure of lead high bismuthate glasses and glass ceramics*, 2005, Vibrational Spectroscopy, (2) 127-130
IF: 1.758 (30/4)x1.758x10=131.85
17. **Baia L.**, Simon S., Kiefer W., *Infrared and Raman structural investigations of Bi₂O₃-PbO-B₂O₃ glasses*, 2005, Physics and Chemistry of Glasses, (3) 279-283
IF: 0.599 (30/3)x0.599x10=59.9
18. Baia, M; **Baia, L**; Astilean, S, *Gold nanostructured films deposited on polystyrene colloidal crystal templates for surface-enhanced Raman spectroscopy*, Chem Phys. Lett. 404 (2005) 3-8.
IF: 2.438 (30/3)x2.438x10= 243.8
19. **Baia L.**, Stefan R., Kiefer W., Simon S., *Structural of characteristics of B₂O₃-Bi₂O₃ glasses with high transition metal oxide content*, 2005, Journal of Raman Spectroscopy, (3) 262-266
IF: 1.884 (30/4)x1.884x10=141.3

Total: 2295.95 pct

Se acorda 30 puncte pentru fiecare articol si se tine cont de numărul de autori.

Formula de calcul: (30 / număr de autori) x Factor de impact ISI x 10

2. Articole științifice publicate în ISI proceedings

1. Baia, M., Danciu, V., Cosoveanu, V., **Baia, L**, *Porous nanoarchitectures based on TiO₂ aerogels and Au particles as potential SERS sensor for monitoring of water quality*, 2008, Vibrational Spectroscopy, A Collection of Papers Presented at the 4th International Conference on Advanced Vibrational Spectroscopy (ICAVS-4) Corfu, Greece, 10-15 June 2007 - Part II., 48 (2), pp. 206-209
IF: 1.810 (30/4)x1.810x10= 135.75
2. Cotet L.C., Baia M., **Baia L.**, Popescu I.C., Cosoveanu V., Indrea E., Popp J., Danciu V., *Structural properties of some transition metal highly doped carbon aerogels*, 2007, Journal of Alloys and Compounds, Proceedings of the 12th International Symposium on Metastable and Nano-Materials (ISMANAM-2005), 434-435, 854-857.
IF: 1.455 (30/8)x1.455x10=54.562

Total: 190.312 pct

Se acorda 30 puncte pentru fiecare articol si se tine cont de numărul de autori.

Formula de calcul: (30 / număr de autori) x Factor de impact ISI x 10

In cazul in care nu are Factor de impact ISI

1. **Baia, L.**, Baia, M., Vasiliu, F., Diamandescu, L., Peter, A., Cosoveanu, V., Danciu, V. *TiO₂-Ag porous nanocomposites for advanced photocatalytic processes*, Technical Proceedings of the 2008 NSTI Nanotechnology Conference and Trade Show, NSTI-Nanotech, Nanotechnology, 2008 1, pp. 381-384
20/7= 2.857

2. M. Popa, **L. Baia**, C. Ghica, M. Baia, E. Indrea, V. Danciu, *Photocatalytic activity assessment of some transition metal doped titania aerogels via morpho-structural analysis*, Technical Proceedings of the 2008 NSTI Nanotechnology Conference and Trade Show, Boston, USA, NSTI-Nanotech, Nanotechnology 2, 114-117 (2008).
20/6= 3.333
3. M. Baia L. C. Cotet, **L. Baia**, L. Barbu-Tudoran, V. Cosoveanu, V. Danciu, J. Popp *Multiwalled carbon nanotubes in carbon aerogel highly doped with iron*, JOAM-Symposia, Proceedings of The International Conference Advanced Spectroscopies On Biomedical And Nanostructured Systems, September 7-10, p 9-12, 2008, Cluj-Napoca, ROMANIA
20/7= 2.857
4. A. Peter, **L. Baia**, F. Vasiliu, L. Diamandescu, M. Baia, V. Cosoveanu, I. C. Popescu, M. Feder, V. Danciu, *Synthesis, morpho-structural and photocatalytic properties of TiO₂ aerogel–Au colloidal particle composites*, Proceedings of the 5th Conference New Research Trends in Material Science ARM-5, Sibiu, Romania, 2007, pp. 799-803.
20/9= 2.222
5. V. Danciu, M. Popa, Z. Pap, **L. Baia**, M. Baia, V. Cosoveanu, F. Vasiliu, L. Diamandescu, M. Feder, R. Alexandrescu, *Iron doped and undoped TiO₂ catalysts for advanced water treatment*, e-Proceeding of the 1st International Conference Environmental Applications of Advanced Oxidation Processes (EAAOP-1), Chania, Grecia, 2006, P041-49.
20/10= 2
6. S. Astilean, M. Baia, **L. Baia**, C. Farcau, D. Maniu, *Tunable Surface-Enhanced Raman Scattering (SERS) from Noble Metal Films Deposited on Polystyrene Colloidal Crystal and Nanoparticle Arrays Fabricated by Nanosphere Litography*, Meeting Digest of the EOS Topical Meeting on Molecular Plasmonic Devices, Engelberg, Elvetia 2006, pp. 74-76.
20/5= 4
7. A. Peter, V. Danciu, V. Cosoveanu, Z. Moldovan, E. Indrea, G. Nutiu, **L. Baia**, I. Rosu, *TiO₂ Aerogel-mediated heterogeneous photocatalysis for wastewater decontamination*, Proceedings of the Conference for Young Professionals Inovations in the Field of Water Supply, Sanitation, and Water Quality Management, Bucharest, Romania, 2005, pp. 103-111.
20/8=2.5

Total: 19.769 pct

Se acorda 20 puncte pentru fiecare articol si se tine cont de numărul de autori.

Formula de calcul: $20 / \text{număr de autori}$

3. Articole științifice publicate în reviste indexate în BDI (din lista CNCSIS) si în reviste românești recunoscute de CNCSIS tip B și B⁺

1. G. Melinte, M. Tămășan, **L. Baia**, V. Simon, *Synthesis and structural characterization of SiO₂-CaO-P₂O₅ sol-gel derived bioglasses*, Studia Universitatis Babes-Bolyai Physica LIV, 2, 9-14, 2009.
10/4= 2.5
2. D. Georgescu, **L. Baia**, S. Simon, *Nanosize Effect In TiO₂ Porous Nanostructures*, Studia Universitatis Babes-Bolyai Physica LIV, 2, 33-40, 2009.
10/3= 3.333
3. D. Muresan, M. Dragan-Bularda, C. Popa, **L. Baia**, S. Simon, *Structural and Biological Investigations of Phosphate Glasses with Silver*, Rom. J. Phys. **51**, 213-219, (2006).
10/5= 2
4. M. Baia, **L. Baia**, *Infrared absorption, Raman and SERS investigations of 2,1-benzisoxazole*, Studia Universitatis Babes-Bolyai Physica L 2, 113-122. 2005.
10/2= 5

Total: 12.833 pct

Se acorda 10 puncte pentru fiecare articol si se tine cont de numărul de autori.

Formula de calcul: $10 / \text{număr de autori}$

4. Alte articole științifice/capitole publicate în reviste/volume cu referenți (peer-reviewed)

1. **L. Baia**, V. Trandafir, V. Danciu, M. Baia, V. Cosoveanu, J. Popp, *Synthesis and morpho-structural investigations of titania-collagen aerogels based biocomposites*, Asian J. Phys., 15(2), 201-207, 2006.
5/6= 0.833

Total: 0.833 pct

Se acorda 5 puncte pentru fiecare lucrare si se tine cont de numărul de autori.

Formula de calcul: $5 / \text{număr de autori}$

5. Cărți științifice publicate în edituri internaționale

1. **L. Baia**, S. Simon, *UV-VIS and TEM assessment of morphological features of silver nanoparticles from phosphate glass matrices*, Modern Research and Educational Topics in Microscopy, A. Mendez-Vilas, J. Diaz (eds.), Formatex, ISBN-13:978-84-611-9418-6, Spania, pp. 576-783, 2007.
 $8/2=4$

Total: 4 pct

Formula de calcul: număr de pagini / număr de autori

6. Cărți științifice publicate în edituri naționale acreditate

1. L. Baia, Fenomene termoelectrice si aplicatii, Casa Cartii de Stiinta, ISBN978-973-133-496-7, , Cluj-Napoca, Romania, 2009, pp. 108.
 $[(108 / 100) \times 20] / 1 = 21.6$
2. **L. Baia**, *Theory and applications of confocal micro-Raman spectroscopy on hybrid polymer coatings and PDMS membranes and spectroscopic studies of doped B₂O₃-Bi₂O₃ glass systems*, Presa Universitara Clujeana, ISBN: 978-973-610-563-0, Cluj-Napoca, Romania, pp. 143, 2007.
 $[(143 / 100) \times 20] / 1 = 28.6$
3. **L. Baia**, S. Simon, *The structure of glass and glass ceramics by vibrational spectroscopy*, Casa Cartii de Stiinta, ISBN978-973-133-183-6, Cluj-Napoca, Romania, 2007, pp. 148.
 $[(148 / 100) \times 20] / 2 = 14.8$

Total: 65 pct

Se acorda 20 puncte pentru fiecare 100 pagini si se tine cont de numărul de autori.

Formula de calcul: $[(\text{număr de pagini} / 100) \times 20] / \text{număr de autori}$

Total criteriul I: 2588.697 pct**Criteriul II – Prestigiu profesional 30% (aplicat la total punctaj Criteriul II)****1. Citări ale articolelor ISI listate la Criteriul I**

Baia M., Toderas F., **Baia L.**, Maniu D., Astilean S., Multilayer structures of self-assembled gold nanoparticles as a unique SERS and SEIRA substrate, 2009, ChemPhysChem, (7) 1106-1111, IF: 3.636, citat in:

1. Conductivity of ionic liquid-derived polymers with internal gold nanoparticle conduits, Lee, S., Cummins, M.D., Willing, G.A., Firestone, M.A. 2009 Journal of Materials Chemistry 19 (43), pp. 8092-8101

1x10=10

Toderas F., Baia M., **Baia L.**, Astilean S., Controlling gold nanoparticle assemblies for efficient surface-enhanced Raman scattering and localized surface plasmon resonance sensors, 2007, Nanotechnology, 18 pp. 255702, IF: 3.31, citat in:

1. Adsorption characteristics of Au nanoparticles onto poly(4-vinylpyridine) surface revealed by QCM, AFM, UV/vis, and Raman scattering spectroscopy, Kim K, Ryoo H, Lee YM, et al, J Colloid Interf Sci 342 (2010) 479-484.
2. The facile fabrication of tunable plasmonic gold nanostructure arrays using microwave plasma, Hsu CY, Huang JW, Gwo S, et al, Nanotechnology 21 (2010) 035302.
3. SnO₂ thin films modified by the SnO₂-Au nanocomposites: Response to reducing gases, Korotcenkov, G., Cho, B.K., Gulina, L., Tolstoy, V., 2009, Sensors and Actuators, B: Chemical 141 (2), pp. 610-616
4. Direct visualization of the chemical mechanism in SERRS of 4-aminothiophenol/metal complexes and metal/4-aminothiophenol/metal junctions, Sun, M., Xu, H., 2009, ChemPhysChem 10 (2), pp. 392-399
5. Rapid and efficient synthesis of colloidal gold nanoparticles by arc discharge method, Ashkarran AA, Zad AI, Mahdavi SM, et al, Appl Phys A-Mater 96 (2009) 423-428.

6. In situ nucleation and growth of silver nanoparticles in membrane materials: A controllable roughened SERS substrate with high reproducibility, Zhou, J., Xu, S., Xu, W., Zhao, B., Ozaki, Y., 2009, *Journal of Raman Spectroscopy* 40 (1), pp. 31-37.
7. Plasmonic optical properties and applications of metal nanostructures, Zhang, J.Z., Noguez, C., 2008, *Plasmonics* 3 (4), pp. 127-150
8. Applications of nanoparticles in biology, De, M., Ghosh, P.S., Rotello, V.M., 2008, *Advanced Materials* 20 (22), pp. 4225-4241
9. Surface plasmon sensor with gold film deposited on a two-dimensional colloidal crystal, Li, Y., Sun, J., Wang, L., Zhan, P., Cao, Z., Wang, Z., 2008, *Applied Physics A: Materials Science and Processing* 92 (2), pp. 291-294
10. Surface enhanced Raman scattering from layered assemblies of close-packed gold nanoparticles, Jung, H.Y., Park, Y.-K., Park, S., Kim, S.K., 2007, *Analytica Chimica Acta* 602 (2), pp. 236-243

10x10=100

Baia L., Muresan D., Baia M., Popp J., Simon S., Structural properties of silver nanoclusters-phosphate glass composites, 2007, *Vibrational Spectroscopy*, (2) 313-318, *IF: 1.78, citat in:*

1. Silver nanocluster-silica composite coatings with antibacterial properties, Ferraris, M., Perero, S., Miola, M., Ferraris, S., Verné, E., Morgiel, J., 2010, *Materials Chemistry and Physics* 120 (1), pp. 123-126
2. Novel nanostructures and optical properties of silver doped sodium phosphate thin films, Singh, P., Deepa, M., Srivastava, A.K., Sood, K.N., Kar, M., 2009, *Journal of Nanoscience and Nanotechnology* 9 (11), pp. 6637-6642
3. Preparation, structural characterisation and antibacterial properties of Ga-doped sol-gel phosphate-based glass, Pickup, D.M., Valappil, S.P., Moss, R.M., Twyman, H.L., Guerry, P., Smith, M.E., Wilson, M., (...), Newport, R.J., 2009, *Journal of Materials Science* 44 (7), pp. 1858-1867
4. Study of color and structural changes in silver painted medieval glasses, Pérez-Villar, S., Rubio, J., Oteo, J.L., 2008, *Journal of Non-Crystalline Solids* 354 (17), pp. 1833-1844
5. Antimicrobial gallium-doped phosphate-based glasses, Valappil, S.P., Ready, D., Abou Neel, E.A., Pickup, D.M., Chrzanowski, W., O'Dell, L.A., Newport, R.J., (...), Knowles, J.C., 2008, *Advanced Functional Materials* 18 (5), pp. 732-741
6. Structural characteristics of antibacterial bioresorbable phosphate glass, Moss, R.M., Pickup, D.M., Ahmed, I., Knowles, J.C., Smith, M.E., Newport, R.J., 2008, *Advanced Functional Materials* 18 (4), pp. 634-639
7. New sol-gel synthesis of a (CaO)0.3(Na2O) 0.2(P2O5)0.5 bioresorbable glass and its structural characterization, Pickup, D.M., Guerry, P., Moss, R.M., Knowles, J.C., Smith, M.E., Newport, R.J., 2007, *Journal of Materials Chemistry* 17 (45), pp. 4777-4784

7x10=70

Baia L., Baia M., Peter A., Cosoveanu V., Danciu V., Evaluating the thermal treatment parameters effect on the anatase nano crystallites size of titania aero gels, 2007, *Journal of Optoelectronics and Advanced Materials*, (3) 668-671, *IF: 0.827, citat in:*

1. Luminescence properties of sol-gel-derived TiO₂:Sm powder, Kiisk, V., Reedo, V., Sild, O., Sildos, I., 2009, *Optical Materials* 31 (9), pp. 1376-1379

1x10=10

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Total: 1140 pct

Formula de calcul: număr citari x 10

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4x10=40

Total: 40 pct

Formula de calcul: număr citari x 10

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40x10=400

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11x10=110

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34x10=340

Total: 1800 pct

Formula de calcul: număr citari x 10

5. Studenți naționali atrași (activități de coordonare științifică și didactică)

- Îndrumare lucrări de licență (număr lucrări susținute) 2 lucrari

$3 \times 2 = 6$

- Îndrumare lucrări de disertație (număr lucrări susținute) 2 lucrari

$(4 \times 2) / 2 = 4$

Formula de calcul:

3 puncte x [(număr de proiecte, lucrări de licență) / număr de conducători științifici]

4 puncte x [(număr de lucrări de masterat conduse) / număr de conducători științifici]

Total: 10 pct

9. Participări la programe/granturi de cercetare finanțate din sursă internațională (se menționează și valoarea)

1. *Proiect cooperare bilaterală Romania-Ungaria* / contract nr.21/2008 / Preparation and Characterization of Visible Light Activated Photocatalysts for Water and Air Decontamination, durata 2008-2009, 144.692 lei

$144692 / 8000 = 18.086$

Total: 18.086 pct

Formula de calcul: valoarea in RON / 8.000

10. Participări la programe/granturi finanțate din sursă națională (se menționează și valoarea)

1. CNCISIS / contract nr. 335/2005 / Studiul formării fazelor nanocristaline în matrici oxidice amorfe, perioada 2005-2006, 87.992 lei

$87992 / 10000 = 8.799$

2. MATNANTECH / contract nr. 243(407)/2004 / Dispozitive fotovoltaice avansate pe baza de straturi nanocristaline de TiO₂ sensibilizate – NANOSENS, perioada 2005-2006, 9000 lei.

$9000 / 10000 = 0.9$

3. MATNANTECH / contract nr. 205(403)/2004 / Biomateriale pe bază de noi structuri de aerogeluri formate din polimeri naturali, TiO₂ și silicați, cu aplicații dirijate – TIABIS, perioada 2005-2006, 8000 lei.

$8000 / 10000 = 0.8$

4. CEEX / contract nr. 16/2005 / Tehnologii integrate pentru obținerea de biocompozite nanostructurate cu aplicații în medicina regenerativă a țesutului osos – TECOREMED, durata 2005-2007, 204.400 lei.

$204400 / 10000 = 20.44$

5. CEEX / contract nr. 23/2005 / Nanomateriale și filme nanostructurate pe baza de TiO₂ pentru aplicații foto-catalitice în domeniul degradării compusilor organici poluanți ai mediului – NANATICATPOL, durata 2005-2008, 225.000 lei.

$225000 / 10000 = 22.5$

6. CEEX / contract nr. 100/2006/ Biomateriale compozite pentru radioterapie și hipertermie simultană – BIORADHIP, durata 2006-2008, 750.000 lei.

$750000 / 10000 = 75$

7. CEEX / contract nr. 710/2006 / Producerea hidrogenului pe cale fotoelectrolitică, HYDROSOL, durata 2006-2008, 225.000 lei.

$225.000 / 10000 = 22.5$

8. CEEX / contract nr. 704/ 2006 / Pile de combustie de nouă generație cu electrolit solid superacid (SAFC), pentru exploatare la temperaturi mai mici de 200°C, durata 2006-2008, 270.000 lei.

$270000 / 10000 = 27$

9. CEEX / contract nr. 760/2006 / Sisteme de pile de combustie pentru electrooxidarea directă a bioalcoolilor – BIODAFC, durata 2006-2008, 200.000 lei.

$200000 / 10000 = 20$

10. CEEX / contract nr. 71/2006 / Nanostructuri și nanoparticule de metale nobile cu proprietăți plasmonice multifuncționale pentru aplicații relevante în nanofotonica, biodetecție și spectroscopie laser, NANOBIOSEC, durata 2006-2008, 1021333 lei.

$1021333 / 10000 = 102.133$

11. PN II / contract nr. 71-099/2007/ Noi sisteme vitroase telurate și germanate cu aplicații în telecomunicații-NOSIVTEL, durata 2007-2010, 250.409 lei.

$250409 / 10000 = 25.04$

12. PN II / contract nr. 71-136/2007 / Materiale fotocatalitice aplicate la decontaminarea chimica si microbiologica a aerului din incinte – MATDECON, durata 2007-2010, 568.045lei.
568045/10000=56.804

Total: 381.916 pct

Formula de calcul: valoarea in RON / 10.000

12. Coordonări de programe/granturi finanțate din sursă națională (se menționează și valoarea)

1. CEEEX-ET / contract nr. 5911/2006 / Noi nano-compozite pe baza de aerogel de TiO₂ si metale nobile cu aplicatii la purificarea si monitorizarea calitatii apei, durata 2006-2007, 135.000 lei.

2x135000/10000= 27

Total: 27 pct

Formula de calcul: 2xvaloarea intrata in UBB in RON / 10.000

Total criteriul II: 3417.002 pct

III. Realizare remarcabilă 10% (aplicat la total punctaj Criteriul III)

(Descrieți într-o manieră cât mai accesibilă (în maximum 1 pagină) cea mai importantă realizare științifică/tehnică/artistică din ultimii 5 ani și impactul acesteia)

Cea mai importanta realizare stiintifica din ultimii 5 ani consider ca a fost studiul unor materiale compozite cu matrice de sticla cu nanoparticule metalice de argint inglobate, folosind tehnici experimentale complemetare (Raman, IR, UV-vis, TEM) si abordari teoretice derivate din teoria Mie. Rezultatele obtinute au fost publicate in 2 articole stiintifice, *Baia L., Baia M., Kiefer W., Popp J., Simon S., Structural and morphological properties of silver nanoparticles-phosphate glass composites, 2006, Chemical Physics, (1) 63-69* si *Baia L., Muresan D., Baia M., Popp J., Simon S., Structural properties of silver nanoclusters-phosphate glass composites, 2007, Vibrational Spectroscopy, (2) 313-318*, care sunt mentionate si in anexa. Compozitele investigate au apartinut sistemului (100-x) [50P₂O₅·30CaO·20Na₂O]xAg₂O cu 0 ≤ x ≤ 5 mol%, iar importanta studierii lor deriva din potentiala lor functionalitate multipla ca biomateriale (pentru regenerarea tesuturilor) cu proprietati antimicrobiene, materiale cu proprietati electrice superioare si materiale cu proprietati optice deosebite utilizate in aplicatii de optica neliniara. In cele doua studii au fost evidentiate atat modificarile structurale induse de prezenta Ag₂O in matricea de sticla prin coroborarea informatiilor obtinute din masuratorile experimentale spectroscopice Raman si IR cat si prezenta, dimensiunea si forma nanoparticulelor de metal nobil utilizand informatiile obtinute din spectrele UV-Vis si simularile teoretice. Utilizarea microscopiei electronice prin transmisie (TEM) a confirmat ipotezele avansate despre particularitatile morfologice ale nanopartilculelor de Ag si in plus a evidentiat prezenta asa numitor clusteri moleculari.

Ca o dovada a impactului pe care l-au avut cele doua publicatii pot mentiona faptul ca acestea au fost citate impreuna de 10 ori, dar as dori sa mentionez in mod special faptul ca aceste studii au fost citate de trei ori intr-o revista cu factor de impact de 6.8 (*Advanced Functional Materials*) si o data intr-o revista cu factor de impact de 4.64 (*Journal of Materials Chemistry*).

Total punctaj = 0,6 x 2588.697 + 0,3 x 3417.002 + 0,1 x (total punctaj Criteriul III) = 2578.318 + 0,1 x (total punctaj Criteriul III)