ROMÂNIA
UNIVERSITATEA BABEŞ-BOLYAI CLUJ-NAPOCA
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RECTORATUL

Universitatea Babeş-Bolyai
Competiţia Excelenţei 2010

Dosar individual

Notă: Toate datele se referă la perioada 2005-2009

Nume, prenume, grad did.	**BAIA MONICA-MARIA, CONF. UNIV. DR.**
Facultatea, Catedra	Facultatea de Fizica, Catedra de Spectroscopie Moleculara
Domeniul ştiinţific	Spectroscopie moleculara
Adresa paginii web personale	www.phys.ubbcluj.ro/~monica.baia
Adresa e-mail	monica.baia@phys.ubbcluj.ro

Criteriul I – Output 60% (aplicat la total punctaj Criteriul I – Output)
Total punctaj: 2120.319+190.312+22.269+9.999+2.499+71.333+27.2= 2443.931

1. Articole ştiinţifice publicate în reviste indexate ISI (cu menţionare factorului de impact în cazul celor cotate)
18 articole 2120.319 pct
2. Articole ştiinţifice publicate în ISI proceedings
2 articole 190.312 pct
In cazul in care nu are Factor de impact ISI
7 articole 22.269 pct
3. Articole ştiinţifice publicate în reviste indexate în BDI (din lista CNCSIS) si în reviste româneşti recunoscute de CNCSIS tip B şi B$^+$
3 articole 9.999 pct
4. Alte articole ştiinţifice/capitole publicate în reviste/volume cu referenţi (peer-reviewed)
2 articole 2.499 pct
5. Cărţi ştiinţifice publicate în edituri internaţionale
1 carte 71.333 pct
6. Cărţi ştiinţifice publicate în edituri naţionale acreditate
1 carte 27.2 pct

Criteriul II – Prestigiu profesional 30% (aplicat la total punctaj Criteriul II)
Total punctaj: 960+40+790+20+9.5+18.086+396.57+1.17+60= 2295.326

1. Citări ale articolelor ISI listate la Criteriul I
96 citari 960 pct
2. Alte citări ale lucrărilor listate mai sus
4 citari 40 pct
3. Citări în perioada 2005-2009 ale articolelor anterioare anului 2005
79 citari 790 pct
4. Distincţii, premii şi alte recunoaşteri naţionale şi internaţionale
2 premii 20 pct
5. Studenţi naţionali atraşi (activităţi de coordonare ştiinţifică şi didactică)

3 lucrari de licenta 7.5 pct
1 lucrare de disertatie 2 pct
Total: 9.5 pct

9. Participări la programe/granturi de cercetare finanţate din sursă internaţională (se menţionează şi valoarea)

Membru al unui proiect bilateral Ro-Hu 18.086 pct

10. Participări la programe/granturi finanţate din sursă naţională (se menţionează şi valoarea)

Membru in 14 contracte nationale 396.57 pct

12. Coordonări de programe/granturi finanţate din sursă naţională (se menţionează şi valoarea)

Director al unui contract national 1.17pct

16. Membru în comitete de organizare sau ştiinţifice ale unor conferinţe internaţionale

Membra in 3 comitete de organizare 60 pct

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

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

Cea mai importanta realizare stiintifica din ultimii ani este publicarea cartii „Raman and SERS investigations of pharmaceuticals" (Monica Baia, Simion Astilean si Traian Iliescu), la editura recunoscuta international Springer – Verlag (2008), impreuna cu alti doi coautori, cadre didactice ale catedrei de Spectroscopie Moleculară a Facultatii de Fizica.

Cartea cuprinde rezultate proprii obtinute in cei 10 ani de activitate desfasurata dupa absolvirea masteratului la Facultatea de Fizica. Astfel, aparitia acestei carti poate fi considerata o recunoastere internationalã a activitatii de cercetare desfasurate la Universitatea Babes-Bolyai in aceasta perioada, care s-a concretizat in peste 100 de publicatii stiintifice, incluse si discutate în capitolele cartii.

In partea introductiva cartea descrie metodele de baza ale spectroscopiei moleculare vibrationale cum sunt absorbtia luminii în domeniul IR (infrarosu), imprastierea luminii prin efect Raman si amplificarea efectului Raman prin metoda SERS (prescurtare de la Surface Enhanced Raman Spectroscopy). In urmatoarele sase capitole cartea prezinta rezultatele obtinute in urma investigatiilor spectroscopice Raman si SERS asupra diferitelor clase de medicamente: tranchilizante, sedative, anti-inflamatoare, vitamine, medicamente cu proprietati antibacteriale si alte molecule cu aplicatii medicale. Cartea se incheie cu un capitol care cuprinde rezultate mai recente obtinute în prepararea si investigarea unor noi substrate nanostructurate pentru SERS care permit atat un control mai bun al factorului de amplificare cat si o reproductibilitate mai bună a masuratorilor SERS - aspecte de actualitate din acest domeniu. Cartea se adreseaza studentilor masteranzi, doctoranzi si cercetarilor din facultatile de fizica, chimie, medicina, farmacie, dar si cercetatorilor din laboratoarele unor firme farmaceutice care se ocupa cu obtinerea si testarea unor noi tipuri de medicamente. Deoarece in ultimii ani a devenit evident faptul ca numai o abordare interdisciplinară a cercetarii asigura succes, cartea este in acest sens un exemplu foarte bun: o metoda de investigare - spectroscopia optica vibrationala - este utilizata de fizicieni in caracterizarea unor substante preparate de chimisti in vederea testarii si utilizarii acestora de catre farmacisti in scopuri medicale.

Ca o dovada a impactului pe care l-a avut aparitia acestei carti pot mentiona faptul ca in perioada iulie-decembrie 2008 au fost vandute 69 de exemplare.

Total punctaj = 0,6 x 2443.931+ 0,3 x 2295.326 + 0,1 x (total punctaj Criteriul III) = 2154.956 + 0,1 x (total punctaj Criteriul III)

Data: Semnătura:

16.03.2010 Conf. Dr. Monica-Maria Baia

Certific validitatea datelor prezentate

Sef de catedră,

Prof. Dr. Simion Astilean

Anexa la Dosarul individual

Notă: Toate datele se referă la perioada 2005-2009

Nume, prenume, grad did.	**BAIA MONICA-MARIA, CONF. UNIV. DR.**
Facultatea, Catedra	Facultatea de Fizica, Catedra de Spectroscopie Moleculara
Domeniul ştiinţific	Spectroscopie moleculara
Adresa paginii web personale	www.phys.ubbcluj.ro/~monica.baia
Adresa e-mail	monica.baia@phys.ubbcluj.ro

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

1. Articole ştiinţifice publicate în reviste indexate ISI (cu menţionare 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. Toderas, F; **Baia, M;** Maniu, D; Astilean, S, *Tuning the plasmon resonances of gold nanoparticles by controlling their size and shape*, J Optoelectron Adv Mater 10 (2008) 2282-2284.
   IF: 0.577 (30/4)x0.577x10= 43.275
4. Baia, L., **Baia, M.,** Danciu, V., Albu, M.G., Coşoveanu, V., Iordăchescu, D., Trandafir, V.*, Type I collagen-TiO_2 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. Maniu, D; Chis, V; **Baia, M**; Toderas, F; Astilean, S, *Density functional theory investigation of p-aminothiophenol molecules adsorbed on gold nanoparticles*, J Optoelectron Adv Mater 9 (2007) 733-736.
   IF: 0.827 (30/5)x0.827x10= 49.62
7. 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
8. 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
9. 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
10. 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

11. **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
12. **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
13. 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
14. Iliescu, T., **Baia, M.,** Pavel, I., *Raman and SERS investigations of potassium benzylpenicillin*, J. Raman Spectrosc. 37 (1-3) (2006) 318-325.
    IF: 2.133 (30/3)x2.133x10= 213.3
15. 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
16. 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
17. **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
18. Leopold, N., Cinta-Pinzaru, S., **Baia, M**., Antonescu, E., Cozar, O., Kiefer, W., Popp, J., *Raman and surface-enhanced Raman study of thiamine at different pH values,* Vib. Spectrosc. 39 (2), (2005), 169-176
    IF: 1.758 (30/7)x1.758x10= 75.342

Total: 2120.319 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 ştiinţifice 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. *TiO_2-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. F. Toderas, M. Iosin, **M. Baia**, S. Astilean, *Probing the Interaction of Bovine Serum Albumin (BSA) and Gold Nanoparticle,* Progress in Nanoscience and Nanotechnologies, din Series in Micro and Nanoengineering, Ed. Academiei Romane, editori IRINA KLEPS, ALINA CATRINEL ION SI DAN DASCALU, BUCURESTI 2007, ISBN 978-973-27-1576-5, pp. 215-221.
20/4= 5
5. 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 TiO_2 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
6. V. Danciu, M. Popa, Z. Pap, L. Baia, **M. Baia,** V. Cosoveanu, F. Vasiliu, L. Diamandescu, M. Feder, R. Alexandrescu, *Iron doped and undoped TiO_2 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
7. 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

Total: 22.269 pct

Se acorda 20 puncte pentru fiecare articol si se tine cont de numărul de autori.
Formula de calcul: 20 / *număr de autori*

3. Articole ştiinţifice publicate în reviste indexate în BDI (din lista CNCSIS) si în reviste româneşti recunoscute de CNCSIS tip B şi B$^+$

1. **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
2. A. Peter, **M. Baia**, F. Toderas, M. Lazar, L. B. Tudoran, V. Danciu, *Photo-catalysts based on gold - Titania composites*, Studia Universitatis Babes-Bolyai Chemia, 3, 161-171, 2009.
10/6= 1.666
3. T. Iliescu, **M. Baia**, D. Maniu, *Raman and surface enhanced Raman spectroscopy on molecules of pharmaceutical and biological interest*, Romanian Reports on Physics, 60 (3), 829-855, 2008.
10/3= 3.333

Total: 9.999 pct

Se acorda 10 puncte pentru fiecare articol si se tine cont de numărul de autori.
Formula de calcul: 10 / *număr de autori*

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

1. **M. Baia**, D. Lupu, A. R. Biris, *Surface-enhanced and Raman spectroscopy of carbon nanotubes obtained by CCVD method,* Asian J. Phys., 15(2), 215-220, 2006.
5/3= 1.666
2. 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: 2.499 pct

Se acorda 5 puncte pentru fiecare lucrare si se tine cont de numărul de autori.
Formula de calcul: 5 / *număr de autori*

5. Cărţi ştiinţifice publicate în edituri internaţionale

M. Baia, S. Astilean, T. Iliescu, *Raman and SERS investigations of pharmaceuticals,* Springer-Verlag GmbH, Berlin/Heidelberg, Germany, (2008), pp 214.

214 / 3 = 71.333

Total: 71.333 pct

6. Cărţi ştiinţifice publicate în edituri naţionale acreditate

M. Baia, *Vibrational characterisation of coordination and biologically active compounds by means of IR absorption, Raman and surface-enhanced Raman spectroscopy in combination with theoretical simulations,* Presa Universitara Clujeana, ISBN: 978-973-610-546-3, Cluj-Napoca, pp. 136, 2007.

[(136 / 100) x 20] / 1 = 27.2

Total: 27.2 pct

Total criteriul I: 2443.931 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*, Chemphyschem 10 (2009) 1106-1111. IF: 3.636, citat in:

1. Lee S, Cummins MD, Willing GA, et a, Conductivity of ionic liquid-derived polymers with internal gold nanoparticle conduits, J Phys Chem 19 (2009) 8092-8101.

1x10=10

Toderas, F; **Baia, M;** Maniu, D; Astilean, S, *Tuning the plasmon resonances of gold nanoparticles by controlling their size and shape*, J Optoelectron Adv Mater 10 (2008) 2282-2284. IF: 0.577, citat in:

1. Stanciu L, Won YH, Ganesana M, et a, *Magnetic Particle-Based Hybrid Platforms for Bioanalytical Sensors*, SENSORS 9 (2009) 2976-2999.

1x10=10

Maniu, D; Chis, V; **Baia, M**; Toderas, F; Astilean, S, *Density functional theory investigation of p-aminothiophenol molecules adsorbed on gold nanoparticles*, J Optoelectron Adv Mater 9 (2007) 733-736. IF: 0.827, citat in:

1. Wu DY, Liu XM, Huang YF, et a, *Surface Catalytic Coupling Reaction of p-Mercaptoaniline Linking to Silver Nanostructures Responsible for Abnormal SERS Enhancement: A DFT Study*, J PHYS CHEM C 113 (2009) 18212-18222.
2. Petean I, Tomoaia G, Horovitz O, et al., *Cysteine mediated assembly of gold nanoparticles*, J OPTOELECTRON ADV MATER 9 (2007) 2289-2292.
3. Barbu-Tudoran L, Tomoaia G, Horovitz O, et al., *Self-assembly characteristics of gold nanoparticles in the presence of arginine*, J OPTOELECTRON ADV MATER 9 (2007) 2293-2297.
4. Sun ZH, Wang CX, Yang JX, et al, *Nanoparticle metal - Semiconductor charge transfer in ZnO/PATP/Ag assemblies by surface-enhanced Raman spectroscopy*, J PHYS CHEM C 112 (2008) 6093-6098.

4x10= 40

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, citat in:

1. Kim K, Ryoo H, Lee YM, et al, *Adsorption characteristics of Au nanoparticles onto poly(4-vinylpyridine) surface revealed by QCM, AFM, UV/vis, and Raman scattering spectroscopy*, J COLLOID INTERF SCI 342 (2010) 479-484.
2. Hsu CY, Huang JW, Gwo S, et al, *The facile fabrication of tunable plasmonic gold nanostructure arrays using microwave plasma,* NANOTECHNOLOGY 21 (2010) 035302.
3. Korotcenkov G, Cho BK, Gulina L, et al, *SnO2 thin films modified by the SnO2-Au nanocomposites: Response to reducing gases,* SENSOR ACTUAT B-CHEM 141 (2009) 610-616.

4. Ashkarran AA, Zad AI, Mahdavi SM, et al, *Rapid and efficient synthesis of colloidal gold nanoparticles by arc discharge method,* APPL PHYS A-MATER 96 (2009) 423-428.
5. Sun MT, Xu HX, *Direct Visualization of the Chemical Mechanism in SERRS of 4-Aminothiophenol/Metal Complexes and Metal/4-Aminothiophenol/Metal Junctions*, CHEMPHYSCHEM 10 (2009) 392-399.
6. Zhou J, Xu SP, Xu WQ, et al., *In situ nucleation and growth of silver nanoparticles in membrane materials: a controllable roughened SERS substrate with high reproducibility*, J RAMAN SPECTROSC 40 (2009) 31-37.
7. Zhang JZ, Noguez C, *Plasmonic Optical Properties and Applications of Metal Nanostructures*, PLASMONICS 3 (2008) 127-150.
8. De M, Ghosh PS, Rotello VM, *Applications of Nanoparticles in Biology,* ADV MATER 20 (2008) 4225-4241.
9. Li YY, Sun J, Wang L, et al., *Surface plasmon sensor with gold film deposited on a two-dimensional colloidal crystal*, APPL PHYS A-MATER 92 (2008) 291-294.
10. Jung HY, Park YK, Park S, et al., *Surface enhanced Raman scattering from layered assemblies of close-packed gold nanopardicles*, ANAL CHIM ACTA 602 (2007) 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. Ferraris, M., Perero, S., Miola, M., Ferraris, S., Verné, E., Morgiel, J., *Silver nanocluster-silica composite coatings with antibacterial properties,* Materials Chemistry and Physics 120 (1), (2010), 123-126
2. Singh, P., Deepa, M., Srivastava, A.K., Sood, K.N., Kar, M., *Novel nanostructures and optical properties of silver doped sodium phosphate thin films*, Journal of Nanoscience and Nanotechnology 9 (11), (2009), 6637-6642
3. Pickup, D.M., Valappil, S.P., Moss, R.M., Twyman, H.L., Guerry, P., Smith, M.E., Wilson, M., et al, *Preparation, structural characterisation and antibacterial properties of Ga-doped sol-gel phosphate-based glass*, Journal of Materials Science 44 (7), (2009), 1858-1867
4. Pérez-Villar, S., Rubio, J., Oteo, J.L., *Study of color and structural changes in silver painted medieval glasses,* Journal of Non-Crystalline Solids 354 (17), (2008), 1833-1844
5. Valappil, S.P., Ready, D., Abou Neel, E.A., Pickup, D.M., Chrzanowski, W., O'Dell, L.A., Newport, R.J.,et al, *Antimicrobial gallium-doped phosphate-based glasses*, Advanced Functional Materials 18 (5), (2008), 732-741
6. Moss, R.M., Pickup, D.M., Ahmed, I., Knowles, J.C., Smith, M.E., Newport, R.J., *Structural characteristics of antibacterial bioresorbable phosphate glass,* Advanced Functional Materials 18 (4), (2008), 634-639
7. Pickup, D.M., Guerry, P., Moss, R.M., Knowles, J.C., Smith, M.E., Newport, R.J., *New sol-gel synthesis of a (CaO)0.3(Na2O) 0.2(P2O5)0.5 bioresorbable glass and its structural characterization,* Journal of Materials Chemistry 17 (45), (2007), 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 aerogels*, 2007, Journal of Optoelectronics and Advanced Materials, (3) 668-671.
IF:0.827, citat in:

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1x10=10

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Total: 960 pct

Formula de calcul: număr citari x 10

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Total 40 pct

Formula de calcul: număr citari x 10

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15x10=150

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3x10=30

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2x10=20

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15x10=150

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2x10=20

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9x10=90

Bolboaca, M., Kiefer, W., Popp, J., *Fourier transform Raman and surface-enhanced Raman spectroscopy of some quinoline derivatives,* 2002 Journal of Raman Spectroscopy 33 (3), pp. 207-212. IF: 0.895, citat in:

1. Molecular structure and vibrational spectra of lepidine and 2-chlorolepidine by density functional theory and ab initio Hartree-Fock Calculations, Kurt, M., Yurdakul, Ş, 2005, Journal of Molecular Structure: THEOCHEM 730 (1-3), pp. 59-67

1x10=10

Wingerter, S., Pfeiffer, M., Stey, T., **Bolboaca, M.,** Kiefer, W., Chandrasekhar, V., Stalke, D., *The iminophosphorane Ph3P=NSiMe3 as a synthon for M-Caryl σ bonds (M = In, Fe, Ge) implementing imino sidearm donation,* 2001 Organometallics 20 (13), pp. 2730-2735. IF: 3.182, citat in:

1. Synthesis and characterization of Sn(II), Pb(II) and Yb(II) complexes supported by [C(Ph2PNSiMe3){6-(2-RC5H 3N)}]2- or [CH(Ph2PNSiMe3){6-(2- RC5H3N)}]- (R = 3,5-dimethyl-1-pyrazolyl or iminophosphoranyl) ligands, Chai, Z.-Y., Wang, Z.-X., 2009, Dalton Transactions (38), pp. 8005-8012

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6x10=60

Total: 790 pct

Formula de calcul: număr citari x 10

4. Distincţii, premii şi alte recunoaşteri naţionale şi internaţionale

1. Premiul IN HOC SIGNO VINCES acordat de CNCSIS in anul 2007.
2. Diploma de Merit acordata de Universitatea Babes-Bolyai pentru rezultatele obtinute in anul 2006.

10 x 2 = 20

Total: 20 pct

5. Studenţi naţionali atraşi (activităţi de coordonare ştiinţifică şi didactică)

- Îndrumare lucrari de licentă (număr lucrări susţinute) 3 lucrari

3x2+3/2=6+1.5=7.5

- Îndrumare lucrări de disertaţie (număr lucrări susţinute) 1 lucrare

4/2=2

Total: 9.5 pct

Formula de calcul:
3 puncte x [(număr de proiecte, lucrări de licenţa) / număr de conducători ştiinţifici]
4 puncte x [(număr de lucrări de masterat conduse) / număr de conducători ştiinţifici]

9. Participări la programe/granturi de cercetare finanţate din sursă internaţională (se menţionează şi valoarea)

1. *Proiect cooperare bilaterala 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 finanţate din sursă naţională (se menţionează şi valoarea)

1. 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
2. MATNANTECH / contract nr. 205(403)/2004 / Biomateriale pe bază de noi structuri de aerogeluri formate din polimeri naturali, TiO2 şi silicaţi, cu aplicaţii dirijate – TIABIS, perioada 2005-2006, 8000 lei.
   8000/10000= 0.8
3. CEEX / contract nr. 16/2005 / Tehnologii integrate pentru obtinerea de biocompozite nanostructurate cu aplicatii in medicina regenerativa a tesutului osos – TECOREMED, durata 2005-2007, 204.400 lei.
   204400/10000= 20.44
4. CEEX / contract nr. 23/2005 / Nanomateriale si filme nanostructurate pe baza de TIO2 pentru aplicatii foto-catalitice in domeniul degradarii compusilor organici poluanti ai mediului – NANATICATPOL, durata 2005-2008, 225.000 lei.

225000/10000= 22.5

5. CEEX-ET / contract nr. 5911/2006 / Noi nano-compozite pe baza de aerogel de TiO_2 si metale nobile cu aplicatii la purificarea si monitorizarea calitatii apei, durata 2006-2007, 135.000 lei.
   135000/10000= 13.5
6. CEEX / contract nr. 54/2006/ Cercetari privind determinarea deplasarilor micrometrice ale structurii unei centrale hidroelectrice subterane, CESTRUCT, durata 2006-2008, 259.000 lei.
   259000/10000= 26
7. CEEX / contract nr. 710/2006 / Producerea hidrogenului pe cale fotoelectrolitica, HYDROSOL, durata 2006-2008, 225.000lei.
   225.000/10000= 22.5
8. CEEX / contract nr. 704/ 2006 / Pile de combustie de noua generatie 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 directa a bioalcoolilor – BIODAFC, durata 2006-2008, 200.000 lei.
   200000/10000= 20
10. CEEX / contract nr. 71/2006 / Nanostructuri si nanoparticule de metale nobile cu proprietati plasmonice multifunctionale pentru aplicatii relevante in nanofotonica, biodetectie si spectroscopie laser, NANOBIOSPEC, durata 2006-2008, 1.021.333 lei.
    1021333/10000= 102.133
11. PNII / contract nr. 477/2007 / Nanostructuri plasmonice cu aplicatii in biofotonica, durata 2007-2010, 571.133.72 lei.
    571133.72/10000= 57.113
12. PN II / contract nr. 71-099/2007/ Noi sisteme vitroase telurate si germanate cu aplicatii in telecomunicatii-NOSIVTEL, durata 2007-2010, 250.409lei.
    250409/10000= 25.04
13. PNII / 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
14. PNII / contract nr. 177/2009 / Instalatie de obtinere a apei ultrapure din surse primare, durata 2009-2011, 18.400 lei.
    18400/10000=1.84

Total: 396.57 pct

Formula de calcul: valoarea in RON / 10.000

12. Coordonări de programe/granturi finanţate din sursă naţională (se menţionează şi valoarea)

1. Proiect tip TP_T **(UBB) /** contract nr. 30994/2007 / Studiul interactiunii unor compusi de interes farmaceutic si ecologic cu sisteme nanostructurate in vederea identificarii unor noi proprietati si aplicatii de natura bio-fizico-chimica, durata 2007-2008, 5850 lei.

2x5850/10000=1.17

Total: 1.17 pct

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

16. Membru în comitete de organizare sau ştiinţifice ale unor conferinţe internaţionale

Membra in Comitetul de Organizare al *International Conference on Advanced Spectroscopies on Biomedical and Nanostructured Systems NANOSPEC,* care a avut loc in 2004, 2006 si 2008 la Facultatea de Fizica UBB, Cluj-Napoca.

20x3= 60

Total: 60 pct

Se acorda 20 puncte pentru fiecare comitet.

Formula de calcul: 20 x nr. comitete

Total criteriul II: 2295.326 pct

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

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

Cea mai importanta realizare stiintifica din ultimii ani este publicarea cartii „Raman and SERS investigations of pharmaceuticals" (Monica Baia, Simion Astilean si Traian Iliescu), la editura recunoscuta international Springer – Verlag (2008), impreuna cu alti doi coautori, cadre didactice ale catedrei de Spectroscopie Moleculară a Facultatii de Fizica.

Cartea cuprinde rezultate proprii obtinute in cei 10 ani de activitate desfasurata dupa absolvirea masteratului la Facultatea de Fizica. Astfel, aparitia acestei carti poate fi considerata o recunoastere internationalã a activitatii de cercetare desfasurate la Universitatea Babes-Bolyai in aceasta perioada, care s-a concretizat in peste 100 de publicatii stiintifice, incluse si discutate în capitolele cartii.

In partea introductiva cartea descrie metodele de baza ale spectroscopiei moleculare vibrationale cum sunt absorbtia luminii în domeniul IR (infrarosu), imprastierea luminii prin efect Raman si amplificarea efectului Raman prin metoda SERS (prescurtare de la Surface Enhanced Raman Spectroscopy). In urmatoarele sase capitole cartea prezinta rezultatele obtinute in urma investigatiilor spectroscopice Raman si SERS asupra diferitelor clase de medicamente: tranchilizante, sedative, anti-inflamatoare, vitamine, medicamente cu proprietati antibacteriale si alte molecule cu aplicatii medicale. Cartea se incheie cu un capitol care cuprinde rezultate mai recente obtinute în prepararea si investigarea unor noi substrate nanostructurate pentru SERS care permit atat un control mai bun al factorului de amplificare cat si o reproductibilitate mai bunã a masuratorilor SERS - aspecte de actualitate din acest domeniu.

Cartea se adreseaza studentilor masteranzi, doctoranzi si cercetarilor din facultatile de fizica, chimie, medicina, farmacie, dar si cercetatorilor din laboratoarele unor firme farmaceutice care se ocupa cu obtinerea si testarea unor noi tipuri de medicamente. Deoarece in ultimii ani a devenit evident faptul ca numai o abordare interdisciplinară a cercetarii asigura succes, cartea este in acest sens un exemplu foarte bun: o metoda de investigare - spectroscopia optica vibrationala - este utilizata de fizicieni in caracterizarea unor substante preparate de chimisti in vederea testarii si utilizarii acestora de catre farmacisti in scopuri medicale.

Ca o dovada a impactului pe care l-a avut aparitia acestei carti pot mentiona faptul ca in perioada iulie-decembrie 2008 au fost vandute 69 de exemplare.

Total punctaj = 0,6 x 2443.931+ 0,3 x 2295.326 + 0,1 x (total punctaj <u>Criteriul III</u>) = 2154.956+ 0,1 x (total punctaj <u>Criteriul III</u>)