Centrul International de Biodinamica

infiintat prin HG 1378/2000
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Raport de autoevaluare 2004-2007

Atestare

1. Date de autentificare ale unitatii de cercetare

1.1. Denumirea: CENTRUL INTERNATIONAL DE BIODINAMICA
1.2. Statutul juridic: Fundatie de interes general si utilitate publica
1.3. Actul de infiintare: HG 1378/2000
1.4. Nr.inreg.in Registrul potentialilor contractori:
1.5. Director: CS I Dr. Eugen Gheorghiu
1.6. Adresa: "Bucuresti, Intrarea Portocalelor 1B, sector 6"
"1.7. Telefon, fax, pagina web, e-mail:"
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2. Domeniul de specialitate

2.1. Conform clasificarii UNESCO:

2202;2203;2210;2211;2212;2299;2301;2302;2304;2401;
2403;2406;2407;2412;2414;2415;3105;3207;3208;3209;
3214;3302;3307;3309;3311;3312;

2.2. Conform clasificarii CAEN: 7310; 7430; 8042; 7487; 9133

3. Starea unității de cercetare-dezvoltare

3.1. Misiunea unității de cercetare-dezvoltare, direcțiile de cercetare, dezvoltare, inovare: (maximum 1.000 de caractere):

Centrul International de Biodinamica deruleaza proiecte de cercetare, dezvoltare tehnologica si programe de formare la nivel national si international in domeniul Biodinamicii, pentru analiza, monitorizarea si controlul biosistemelor si biointerfetelor.

Dezvoltarea componentei umane, inalt calificata este orchestrata in sinergie cu modernizarea si largirea infrastructurii de cercetare si asamblarea unei retele de colaborare regionala si internationala. Aplicatiile avute in vedere sunt: detectia analitilor aferenti controlului calitatii apei si alimentelor, precum si analiza platformelor celulare pentru aplicatii biomedicale.
Electrozi miniaturizați sunt combinați cu elemente biologice de recunoaştere (enzime, alte proteine, celule vii, etc.). Această combinație bio / non-bio este exploatată atât cu scopul de a obține noi (bio)senzori cât şi pentru a obține detalii suplimentare despre funcționarea elementului biologic respectiv, utilizand tehnici specifice de electrofiziologie, electrochimie si optica (SPR, microscopie de fluorescenta si TIRF) si platforme combinate (ex. platforme electro-optice).

3.2. Modul de valorificare a rezultatelor de cercetare, dezvoltare, inovare şi gradul de recunoaştere a acestora (maximum 1.000 de caractere):

Rezultatele sunt în primul rând valorificate sub forma de articole publicate în reviste de specialitate (factor de impact ISI intre 1.4 si 5.64). O măsură a gradului de recunoaştere al impactului si calitatii cercetarilor derulate in CIB il constituie si participarea in initiative internationale: 1 proiect FP5, 2 proiecte FP6, 5 proiecte bilaterale cu Belgia, Singapore si Franta si 3 propuneri FP7 a caror punctaj s-a situat peste barem. Rezultatele au fost prezentate la conferințe internaționale de prestigiu (vezi Congresul de Biosenzori organizat bianual unde s-a participat la 3 ediții cu lucrări ce prezinta metode originale dezvoltate in cadrul CIB), CIB fiind si organizatorul unor manifestari cu larga participare internationala in 2004, 2006 si 2007.
Pe plan intern, CIB deruleaza ca si contractor unic sau in consortii interdisciplinare, un numar de 12 proiecte de cercetare aplicativa.
Metodele si dispozitivele dezvoltate au la baza brevete ale CIB. Acreditarea unor laboratoare de analize prevazuta pentru finalul lui 2007 este o alta modalitate de valorificare a metodelor si dispozitivelor dezvoltate in cadrul CIB.

3.3. Situatia financiara – datorii la bugetul de stat : 0

4.Criterii primare de performanță

4.1. Lucrări ştiințifice/tehnice publicate în reviste de specialitate cotate ISI*4

4.1.1. Număr de lucrări ştiințifice
4.1.2. Punctaj cumulat ISI

Publicatii in reviste ISI

Nr. Crt.	Lucrarea	Autorii	Punctaj ISI
		2004	
1	**Membrane Cholesterol Depletion in A6 cells depresses activated sodium transport and elicits a transient chloride secretion during a hypotonic shock/", J Am Soc Nephrol /15, 2004 (abstract)**	P. Steels, D. Jans, W. van Driessche, *C.M. Balut*	(7. 24)
2	**Modeling of basolateral ATP release induced by hypotonic treatment in A6 cells" 2004. Eur Biophys J.vol 33 No 5, 412-420; (1.76)**	M. Gheorghiu, W. Van Driessche	(1.76)
3	**"Effects of membrane cholesterol on epithelial sodium channels (ENaC) present in A6 cells and expressed in /Xenopus laevis/ oocytes", /Pfluegers Archives/, 447, 2004 (abstract)**	C.M. Balut*, A. Segal, D. Cucu, W. van Driessche, P. Steels	(4.807)
4	**"The role of emitter quasi-bound state and scattering on intrinsic bistability in resonant tunneling diodes", Physica E 22/4, 815, 2004.**	T. Sandu W. P. Kirk	(0.95)
5	**The transoocyte voltage clamp: a non-invasive technique for electrophysiological experiments with Xenopus laevis oocytes.**	Cucu, D., Simaels J., Jans D., Van Driessche,	(4.807)

	Pflügers Arch 447:934-942.		
6	**"Visualization of micropatterned complex biosensor sensing chemistries by means of scanning electrochemical microscopy", Biosens. Bioelectron., 2004, 19(10), 1175-1184.**	M. Niculescu, S. Gáspár, A. Schulte, E. Csöregi, W. Schuhmann	(3.463)
7	**"Biosensors for life quality: Design, development and applications", Sensors and Actuators B, 2004, 102(2), 179-194.**	J. Castillo, S. Gáspár, S. Leth, M. Niculescu, Mortari, I. Bontidean, V. Soukharev, S. A. Dorneanu, A. D. Ryabov, E. Csöregi	(2.646)
8	**Amperometric biosensor-based flow-through microdetector for microdialysis applications, Anal. Chim. Acta, 2004, 525(1), 75-82.**	S. Gáspár, X. Wang, H. Suzuki, E. Csöregi	(2.073)
	TOTAL/An		**28.783**
2005			
9	**Generalized band anti-crossing model for highly mismatched semiconductors applied to $BeSe_xTe_{1-x}$, Phys. Rev. B.72, 073204, 2005; cond-mat/0507189**	Titus Sandu W. P. Kirk	(3.185)
10	**"Optical matrix elements in tight-binding models with**		(3.185)

	overlap", Phys. Rev. B. 72, 125105, 2005; cond-mat/0507204.	Titus Sandu	
11	**"Band bowing in $BeSe_xTe_{1-x}$", AIP Conference Preceedings vol. 772, p. 175, 2005.**	T. Sandu W. P. Kirk	(2.316)
12	**"How membrane cholesterol depletion regulates Na+ transport in A6 renal epithelial cells ", /J Am Soc Nephrol /16, 2005 (abstract)**	C.M. Balut, D. Jans, W. Van Driessche, P. Steels	(7.24)
13	**"Membrane Cholesterol Extraction decreases Na+ Reabsorption in A6 Renal Epithelia", /AJP -- Cel, /290 (1), C87-94, 2006, Epub Aug 17, 2005**	C.M. Balut*, P. Steels, M. Radu, M. Ameloot, Van Driessche, D. Jans,	(3.942)
14	**Opposite effects of Ni^{2+} on Xenopus and rat ENaC expressed in Xenopus oocytes. Am J Physiol Cell 289(4): C946-58**	Cucu D, Simaels J, Eggermont J, Van Driessche, Zeiske W	(3.942)
	TOTAL/An		**23.81**
	2006		
15	**"Spin tunneling through an indirect barrier", Phys. Rev. B. 73, 075313, 2006; cond-mat/0601297**	Titus Sandu, Athanasios Chantis, Radu Iftimie	(3.185)
16	**"Dynamics of a two-level system coupled with a quantum oscillator: The very strong coupling limit", Phys. Rev. B. 74, 113405 (2006); cond-mat/0608483**	Titus Sandu	(3.185)
17	**"Electronic and optical properties of beryllium chalcogenides/silicon", Phys. Rev. B. 73, 235307 (2006); cond-mat/0608514.**	Titus Sandu W. P. Kirk	(3.185)
	TOTAL/An		**9.555**

	2007		
18	**"Sensing at nanoscale via structured interfaces" Eur Biophys J. (2007) 36 S157**	M. Gheorghiu, S. David, C. Polonschii, E. Gheorghiu	(1.811)
19	**High temporal resolution monitoring of fermentations using an on-line amperometric flow-through microdetector, Electroanalysis, 2007, 19(1), 43-48.**	K. Zor, S. Gaspar, M. Hashimoto, H. Suzuki, E. Csoregi,	(2.189)
20	**Ultramicrobiosensor for the selective detection of glutamate, Electroanalysis, 2007, 19(1), 71-78.**	O.M. Schuvailo, S. Gaspar, A.P. Soldatkin, E. Csoregi	(2.189)
21	**High temporal resolution monitoring of fermentations using an on-line amperometric flow-through microdetector, Electroanalysis, 2007, 19(1), 43-48.**	K. Zór, S. Gáspár, M. Hashimoto, H. Suzuki, E. Csöregi	(2.189)
22	**Miniaturized on-line digestion system for the sequential identification and characterization of protein analytes, J. Chromatography A, 2007, 1146(1), 17-22.**	M. Hedstrom, C.E. Grey, S. Gaspar, B. Mattiasson	(3.096)
23	**"Comments on Spin-dependent tunneling through a symmetric semiconductor barrier: The Dresselhaus effect" to be published into Phys Rev. B.(2007)**	Titus Sandu	(3.185)
6	TOTAL/An		**14.659**
23	***TOTAL***		***(76.807)***

Anexa 4.1
(4.1.3)

Publicatii in reviste ISI
Citari in reviste de specialitate ale personalului CIB

Nr. Crt.	Lucrarea	Autorii	Nr. citari	Citari In reviste de specialitate
2004				
1	**"Experimental determination of blood permittivity and conductivity in simple shear flow", Clinical Hemorheology and Microcirculation, Vol. 30, Nr. 3-4, 359 – 364, 2004**	**C. Balan, C.M. Balut, L. Gheorghe, C. Gheorghe, E. Gheorghiu, G. Ursu**	**1**	Studies of electrorheological properties of blood Antonova, N., Riha, P. Clinical Hemorheology and Microcirculation 35 (1-2), pp. 19-29
2	**Measuring living cells using dielectric spectroscopy Bioelectrochemistry and Bioenergetics, 1996**	**E.Gheorghiu**	**4**	Cellular dielectric spectroscopy: A powerful new approach to label-free cellular analysis Ciambrone, G.J., Liu, V.F., Lin, D.C., McGuinness, R.P., Leung, G.K., Pitchford, S. Journal of Biomolecular Screening 9 (6), pp. 467-480
				Time domain dielectric spectroscopy measurements of HL-60 cell suspensions after microsecond and nanosecond electrical pulses Garner, A.L., Chen, N., Yang, J., Kolb, J., Swanson, R.J., Loftin, K.C., Beebe, S.J., (...), Schoenbach, K.H. IEEE Transactions on Plasma Science 32 (5 II), pp. 2073-2084
				Experimental determination of blood permittivity and conductivity in simple shear flow Clinical Hemorheology and Microcirculation 30 (3-4), pp. 359-364
				Analysis in Ultrasmall Volumes: Microdispensing of Picoliter Droplets and Analysis without Protection from Evaporation Neugebauer, S., Evans, S.R.,

3	**A method for the design and study of enzyme microstructures formed by means of a flow-through microdispenser Anal. Chem, 2001**	**Gáspár, S., Mosbach, M., Wallman, L., Laurell, T., Csŏregi, E., Schuhmann, W.**	**9**	Aguilar, Z.P., Mosbach, M., Fritsch, I., Schuhmann, W. Analytical Chemistry 76 (2), pp. 458-463
				Simultaneous covalent immobilization of glucose oxidase and catalase onto chemically modified acrylonitrile copolymer membranes Godjevargova, T., Dayal, R., Marinov, I. Journal of Applied Polymer Science 91 (6), pp. 4057-4063
				Visualization of micropatterned complex biosensor sensing chemistries by means of scanning electrochemical microscopy Niculescu, M., Gáspár, S., Schulte, A., Csöregi, E., Schuhmann, W. Biosensors and Bioelectronics 19 (10), pp. 1175-1184
				Chemical imaging of biological systems with the scanning electrochemical microscope Gyurcsányi, R.E., Jágerszki, G., Kiss, G., Tóth, K. Bioelectrochemistry 63 (1-2), pp. 207-215
				Label-free electrochemical recognition of DNA hybridization by means of modulation of the feedback current in SECM Turcu, F., Schulte, A., Hartwich, G., Schuhmann, W. Angewandte Chemie - International Edition 43 (26), pp. 3482-3485
				An advanced biological scanning electrochemical microscope (Bio-SECM) for studying individual living cell Bauermann, L.P., Schuhmann, W., Schulte, A. Physical Chemistry Chemical Physics 6 (15), pp. 4003-4008
				An SECM detection scheme with improved sensitivity and lateral resolution: Detection of galactosidase activity with signal amplification by glucose

				dehydrogenase Zhao, C., Wittstock, G. Angewandte Chemie - International Edition 43 (32), pp. 4170-4172
				Immobilization of glucose oxidase on cellulose/cellulose acetate membrane and its detection by scanning electrochemical microscope (SECM) Zhao, J.S., Yang, Z.Y., Zhang, Y.H., Yang, Z.Y. Chinese Chemical Letters 15 (11), pp. 1361-1364
				Optimization of "wired" enzyme O2-electroreduction catalyst compositions by scanning electrochemical microscopy Fernández, J.L., Mano, N., Heller, A., Bard, A.J. Angewandte Chemie - International Edition 43 (46), pp. 6355-6357
4	**Hydrogen peroxide biosensors based on direct electron transfer from plant peroxidases immobilized on self-assembled thiol-monolayer modified gold electrodes** **Electroanalysis, 2001, 13 (4), 284-288**	**Gaspar, S., Zimmermann, H., Gazaryan, I., Csöregi, E., Schuhmann, W.**	**6**	Flow injection amperometric detection at enzyme-modified gold nanoelectrodes Delvaux, M., Demoustier-Champagne, S., Walcarius, A. Electroanalysis 16 (3), pp. 190-198
				Thick-film electrodes for measurement of superoxide and hydrogen peroxide based on direct protein-electrode contacts Krylov, A.V., Beissenhirtz, M., Adamzig, H., Scheller, F.W., Lisdat, F. Analytical and Bioanalytical Chemistry 378 (5), pp. 1327-1330
				Preparation of biosensors based in a siloxane homopolymer with interacting ferrocenes for the amperometric detection of peroxides García Armada, M.P., Losada, J., Cuadrado, I., Alonso, B., González, B., Casado, C.M., Zhang, J. Sensors and Actuators, B: Chemical 101 (1-2), pp. 143-149
				Bioelectrocatalysis of oxygen reduction reaction by laccase on

				gold electrodes Gupta, G., Rajendran, V., Atanassov, P. Electroanalysis 16 (13-14), pp. 1182-1185
				Disposable biosensor based on a hemoglobin colloidal gold-modified screen-printed electrode for determination of hydrogen peroxide Xu, X., Liu, S., Ju, H. IEEE Sensors Journal 4 (4), pp. 390-394
				Direct voltammetry and catalysis of hemoenzymes in methyl cellulose film Li, Y.-M., Chen, X.-T., Li, J., Liu, H.-H. Electrochimica Acta 49 (19), pp. 3195-3200
5	**Hydrogen peroxide sensitive biosensor based on plant peroxidases entrapped in Os-modified polypyrrole films** **Sensors and Actuators B, 2001, 72 (1). 63-68.**	**Gaspar, S., Habermüller, K., Csöregi, E., Schuhmann, W.**	**3**	Preparation of biosensors based in a siloxane homopolymer with interacting ferrocenes for the amperometric detection of peroxides Sensors and Actuators, B: Chemical 101 (1-2), pp. 143-149
				A new strategy for determining optimum pH of isozymes Bulletin of the Korean Chemical Society 25 (7), pp. 997-1002
				XPS and FT-IR spectroscopy study of albumin adsorption on the surface of a π-conjugated polymer film Surface and Interface Analysis 36 (8), pp. 724-728
6	**On the limits of ellipsoidal models when analyzing dielectric behavior of living cells. Emphasis on red blood cells** **Annals of The New York Academy of Sciences 1999**	**E.Gheorghiu**	**2**	Dielectrophoretic forces on the nanoscale Schaldach, C.M., Bourcier, W.L., Paul, P.H., Wilson, W.D. Langmuir 20 (24), pp. 10744-10750
				Electrical admittance method for estimating fluid removal during artificial dialysis Sakamoto, K., Kanai, H., Furuya, N. Medical and Biological Engineering and Computing 42 (3), pp. 356-365

7	**Real-time monitoring of yeast cell division by dielectric spectroscopy** **Biophys. J 1999**	**K. Asami, E. Gheorghiu, T. Yonezawa**	**3**	Evaluation of electric impedance spectra for single bio-cells with micro-fluidic devices using combined FEMLAB/HSPICE simulated models Senez, V., Takatoki, T., Poussard, B., Fukuba, T., Capron, J.M., Fujii, T. 2004 NSTI Nanotechnology Conference and Trade Show - NSTI Nanotech 2004 1, pp. 99-102
				Low-frequency, low-field dielectric spectroscopy of living cell suspensions Prodan, C., Mayo, F., Claycomb, J.R., Miller Jr., J.H., Benedik, M.J. Journal of Applied Physics 95 (7), pp. 3754-3756
				Developing rapid detection of mycobacteria using microwaves Jing, G., Hollis, G., Polaczyk, A., Eluru, H.B., Kinkle, B., Mast, D., Oerther, D.B., Papautsky, I. Analyst 129 (10), pp. 963-969
8	Dielectric behavior of budding yeast in cell separation **BBA 1998**	**K. Asami, E. Gheorghiu, T. Yonezawa**	**3**	Developing rapid detection of mycobacteria using microwaves Jing, G., Hollis, G., Polaczyk, A., Eluru, H.B., Kinkle, B., Mast, D., Oerther, D.B., Papautsky, I. Analyst 129 (10), pp. 963-969
				Water-network percolation transitions in hydrated yeast Sokołowska, D., Król-Otwinowska, A., Mościcki, J.K. Physical Review E - Statistical, Nonlinear, and Soft Matter Physics 70 (5 1), art. no. 052901, pp. 052901-1-052901-4
				Control of cell elution from a dielectrophoresis micro-array using a permittivity gradient Lee, R.S., Arnold, W.M., Pethig, R.

				Annual Report - Conference on Electrical Insulation and Dielectric Phenomena, CEIDP, pp. 352-355
9	**Monitoring cell cycle by impedance spectroscopy: Experimental and theoretical aspects Bioelectrochem. Bioenerg1998**	**E.Gheorghiu**	**1**	Electrical stimulation of Saccharomyces cerevisiae cultures Araújo, O.Q.F., Coelho, M.A.Z., Margarit, I.C.P., Vaz-Junior, C.A., Rocha-Leão, M.H.M. Brazilian Journal of Microbiology 35 (1-2), pp. 97-103
10	**Characterizing cellular systems by means of dielectric spectroscopy Bioelectromagnetics, 1996**	**E.Gheorghiu**	**1**	Cellular dielectric spectroscopy: A powerful new approach to label-free cellular analysis Ciambrone, G.J., Liu, V.F., Lin, D.C., McGuinness, R.P., Leung, G.K., Pitchford, S. Journal of Biomolecular Screening 9 (6), pp. 467-480
11	**Shape effects on the dielectric behaviour of arbitrarily shaped particles with particular reference to biological cells Bioelectrochemistry and Bioenergetics, 1996**	**E.Gheorghiu**	**1**	Complex permittivity measurement as a new noninvasive tool for monitoring in vitro tissue engineering and cell signature through the detection of cell proliferation, differentiation, and pretissue formation Bagnaninchi, P.-O., Dikeakos, M., Veres, T., Tabrizian, M IEEE Transactions on Nanobioscience 3 (4), pp. 243-250
12	**Membrane Cholesterol Depletion in A6 cells depresses activated sodium transport and elicits a transient chloride secretion during a hypotonic shock/", J Am Soc Nephrol /15, 2004 (abstract)**	**P. Steels, D. Jans, W. van Driessche, *C.M. Balut***	**0**	
13	**Modeling of basolateral ATP release induced by hypotonic treatment in A6 cells" 2004. Eur Biophys J.vol 33 No 5, 412-420; (1.76)**	**M. Gheorghiu, W. Van Driessche**	**1**	Kinetics of urothelial ATP release SA Lewis, JR Lewis - American Journal of Physiology- Renal Physiology
	"Effects of membrane cholesterol on epithelial sodium channels	**C.M. Balut*,**		

14	**(ENaC) present in A6 cells and expressed in /Xenopus laevis/ oocytes", /Pfluegers Archives/, 447, 2004 (abstract)**	**A. Segal, D. Cucu, W. van Driessche, P. Steels**	**0**	
15	**"The role of emitter quasi-bound state and scattering on intrinsic bistability in resonant tunneling diodes", Physica E 22/4, 815, 2004.**	**T. Sandu and W. P. Kirk**	**1**	NEGF simulation of the RTD bistability Voves, J., Třebický, T., Jackiv, R. Journal of Computational Electronics 6 (1), pp. 259-262
16	**The transoocyte voltage clamp: a non-invasive technique for electrophysiological experiments with Xenopus laevis oocytes.** **Pflügers Arch 447:934-942.**	**Cucu, D., Simaels, J., Jans, D., Van Driessche, W.**	**2**	The use of the Xenopus oocyte as a model system to analyze the expression and function of eukaryotic heat shock proteins Biotechnology Advances 25 (4), pp. 385-395 Integrated microsystem for non-invasive electrophysiological measurements on Xenopus oocytes Biosensors and Bioelectronics 22 (12), pp. 3196-3202
17	**"Visualization of micropatterned complex biosensor sensing chemistries by means of scanning electrochemical microscopy", Biosens. Bioelectron., 2004, 19(10), 1175-1184.**	**M. Niculescu, *S. Gáspár*, A. Schulte, E. Csöregi, W. Schuhmann**	**9**	[1] G. Wittstock, M. Burchardt, S. E. Pust, Y. Shen, C. Zhao, Scanning electrochemical microscopy for direct imaging of reaction rates, Angewandte Chemie-International Edition 2007, 46, 1584. [2] G. Nagy, L. Nagy, Electrochemical sensors developed for gathering microscale chemical information, Analytical Letters 2007, 40, 3. [3] N. R. Wilson, M. Guille, I. Dumitrescu, V. R. Fernandez, N. C. Rudd, C. G. Williams, P. R. Unwin, J. V. Macpherson, Assessment of the electrochemical behavior of two-dimensional networks of single-walled carbon nanotubes, Analytical Chemistry 2006, 78, 7006. [4] E. Fortin, P. Mailley, L. Lacroix, S. Szunerits, Imaging of DNA hybridization on microscopic polypyrrole patterns

				using scanning electrochemical microscopy (SECM): the HRP bio-catalyzed oxidation of 4-chloro-1-naphthol, Analyst 2006, 131, 186. [5] X. F. Yang, Z. D. Zhou, D. Xiao, M. M. F. Choi, A fluorescent glucose biosensor based on immobilized glucose oxidase on bamboo inner shell membrane, Biosensors & Bioelectronics 2006, 21, 1613. [6] C. Wang, Y. Zhang, H. S. Seng, L. L. Ngo, Nanoparticle-assisted micropatterning of active proteins on solid substrate, Biosensors & Bioelectronics 2006, 21, 1638. [7] D. Burshtain, D. Mandler, Studying the binding of Cd2+ by omega-mercaptoalkanoic acid self assembled monolayers by cyclic voltammetry and scanning electrochemical microscopy (SECM), Journal of Electroanalytical Chemistry 2005, 581, 310. [8] M. Wu, Z. H. Lin, M. Schaferling, A. Durkop, O. S. Wolfbeis, Fluorescence imaging of the activity of glucose oxidase using a hydrogen-peroxide-sensitive europium probe, Analytical Biochemistry 2005, 340, 66. [9] J. L. Fernandez, N. Mano, A. Heller, A. J. Bard, Optimization of "wired" enzyme O-2-electroreduction catalyst compositions by scanning electrochemical microscopy, Angewandte Chemie-International Edition 2004, 43, 6355.

18	**"Biosensors for life quality: Design, development and applications", Sensors and Actuators B, 2004, 102(2), 179-194.**	**J. Castillo, *S. Gáspár*, S. Leth, M. Niculescu, A. Mortari, I. Bontidean, V. Soukharev, S. A. Dorneanu, A. D. Ryabov, E. Csöregi**	**26**	[1] S. Timur, U. Anik, D. Odaci, L. Lo Gorton, Development of a microbial biosensor based on carbon nanotube (CNT) modified electrodes, Electrochemistry Communications 2007, 9, 1810.
				[2] Q. J. Liu, H. Cai, Y. Xu, L. D. Xiao, M. Yang, P. Wang, Detection of heavy metal toxicity using cardiac cell-based biosensor, Biosensors & Bioelectronics 2007, 22, 3224.
				[3] P. Vopalensky, T. Ruml, P. Kotrba, Biological components of heavy metal biosensors, Chemicke Listy 2007, 101, 468.
				[4] M. Mijajlovic, M. J. Biggs, On use of the amber potential with the Langevin dipole method, Journal of Physical
				Chemistry B 2007, 111, 7591.
				R. Maalouf, H. Chebib, Y. Saikali, O. Vittori, M. Sigaud, F. Garrelie, C. Donnet, N. Jaffirezic-Renault, Characterization of different diamond-like carbon electrodes for biosensor design, Talanta 2007, 72, 310.
				[6] J. M. Boutin, J. Richer, M. Tremblay, V. Bissonette, N. Voyer, Synthesis and characterization of peptide nanostructures chemisorbed on gold, New Journal of Chemistry 2007, 31, 741.
				[7] M. M. Barsan, J. Klincar, M. Batic, C. M. A. Brett, Design and application of a flow cell for carbon-film based electrochemical enzyme

biosensors, Talanta 2007, 71, 1893.

[8] K. S. Chang, C. K. Chang, S. F. Chou, H. C. Han, C. Y. Chen, Characterization of a planar L-glutamate amperometric biosensor immobilized with a photo-crosslinkable polymer membrane, Sensors and Actuators B-Chemical 2007, 122, 195.

[9] M. Friedel, A. Baumketner, J. E. Shea, Stability of a protein tethered to a surface, Journal of Chemical Physics 2007, 126.

[10] V. A. Karachevtsev, A. Y. Glamazda, V. S. Leontiev, O. S. Lytvyn, U. Dettlaff-Weglikowska, Glucose sensing based on NIR fluorescence of DNA-wrapped single-walled carbon nanotubes, Chemical Physics Letters 2007, 435, 104.

[11] F. Tasca, S. Timur, R. Ludwig, D. Haltrich, J. Volc, R. Antiochia, L. Gorton, Amperometric biosensors for detection of sugars based on the electrical wiring of different pyranose oxidases and pyranose dehydrogenases with osmium redox polymer on graphite electrodes, Electroanalysis 2007, 19, 294.

[12] C. H. Lee, S. C. Wang, C. J. Yuan, M. F. Wen, K. S. Chang, Comparison of amperometric biosensors fabricated by palladium sputtering, palladium electrodeposition and Nafion/carbon nanotube casting on screen-printed carbon electrodes, Biosensors & Bioelectronics 2007, 22, 877.

[13] M. L. Mena, V. Carralero, A. Gonzalez-Cortes, P. Yanez-Sedeno, J. M. Pingarron, Bioelectrochemical evaluation of the total phenols content in olive oil mill wastewaters using a tyrosinase-

colloidal gold-graphite-Teflon biosensor, International Journal of Environmental Analytical Chemistry 2007, 87, 57.

[14] F. Batzias, C. G. Siontorou, A novel system for environmental monitoring through a cooperative/synergistic scheme between bloindicators and biosensors, Journal of Environmental Management 2007, 82, 221

.

[15] E. Chow, J. J. Gooding, Peptide modified electrodes as electrochemical metal ion sensors, Electroanalysis 2006, 18, 1437.

[16] L. Pastorino, F. C. Soumetz, M. Giacomini, C. Ruggiero, Development of a piezoelectric immunosensor for the measurement of paclitaxel, Journal of Immunological Methods 2006, 313, 191.

[17] E. Lojou, P. Bianco, Application of the electrochemical concepts and techniques to amperometric biosensor devices, Journal of Electroceramics 2006, 16, 79.

[18] S. Timur, Y. Yigzaw, L. Gorton, Electrical wiring of pyranose oxidase with osmium redox polymers,

Sensors and Actuators B-Chemical 2006, 113, 684.

[19] R. Zlatev, J. P. Magnin, P. Ozil, M. Stoytcheva, Bacterial sensors based on Acidithiobacillus ferrooxidans - Part I. Fe2+ and S2O32- determination, Biosensors & Bioelectronics 2006, 21, 1493.

[20] P. Tartaj, Nanomagnets-from fundamental physics to biomedicine, Current Nanoscience 2006, 2, 43.

[21] L. Stoica, R. Ludwig, D. Haltrich, L. Gorton, Third-generation biosensor for lactose based on newly discovered cellobiose dehydrogenase, Analytical Chemistry 2006, 78, 393.

[22] J. P. Sumner, N. M. Westerberg, A. K. Stoddard, T. K. Hurst, M. Cramer, R. B. Thompson, C. A. Fierke, R. Kopelman, DsRed as a highly sensitive, selective, and reversible fluorescence-based biosensor for both Cu+ and Cu2+ ions, Biosensors & Bioelectronics 2006, 21, 1302.

[23] J. E. Kohn, K. W. Plaxco, Engineering a signal transduction mechanism for protein-based biosensors, Proceedings of the National Academy of Sciences of the United States of America 2005, 102, 10841.

[24] K. R. C. Reddy, F. Turcu, A. Schulte, A. M. Kayastha, W. Schuhmann, Fabrication of a potentiometric/amperometric bifunctional enzyme microbiosensor, Analytical Chemistry 2005, 77, 5063.

[25] A. D. Ryabov, V. S. Kurova, E. V. Ivanova, R. Le Lagadec, L. Alexandrova, Redox mediation and photomechanical oscillations involving photosensitive cyclometalated Ru(II)

complexes, glucose oxidase, and peroxidase, Analytical Chemistry 2005, 77, 1132.

[26] R. Le Lagadec, L. Rubio, L. Alexandrova, R. A. Toscano, E. V. Ivanova, R. Meskys, V. Laurinavicius, M. Pfeffer, A. D. Ryabov, Cyclometalated N,N-dimethylbenzylamine ruthenium(II) complexes Ru((C6HRRR3)-R-1-R-2-o-CH2NMe2)(bpy)(RCN)(2) PF6 for bioapplications: synthesis, characterization, crystal structures, redox properties, and reactivity toward PQQ-dependent glucose dehydrogenase, Journal of

				Organometallic Chemistry 2004, 689, 4820.
19	**Amperometric biosensor- based flow-through microdetector for microdialysis applications, Anal. Chim. Acta, 2004, 525(1), 75-82.**	***S. Gáspár*, X. Wang, H. Suzuki, E. Csöregi**	**3**	[1] K. Zor, S. Gaspar, M. Hashimoto, H. Suzuki, E. Csoregi, High temporal resolution monitoring of fermentations using an on-line amperometric flow-through microdetector, Electroanalysis 2007, 19, 43.
				[2] M. Zhang, C. Mullens, W. Gorski, Amperometric glutamate biosensor based on chitosan enzyme film, Electrochimica Acta 2005, 51, 4528.
				[3] M. G. Zhang, C. Mullens, W. Gorski, Chitosan-glutamate oxidase gels: Synthesis, characterization, and glutamate determination, Electroanalysis 2005, 17, 2114
Total/An			**74**	
2005				
20	**Generalized band anti-crossing model for highly mismatched semiconductors applied to $BeSe_xTe_{1-x}$, Phys. Rev. B.72, 073204, 2005; cond-mat/0507189**	**Titus Sandu and W. P. Kirk**	**0**	
21	**Measuring living cells using dielectric spectroscopy Bioelectrochemistry and Bioenergetics, 1996**	**E.Gheorghiu**	**4**	Effect of the shape of human erythrocytes on the evaluation of the passive electrical properties of the cell membrane Di Biasio, A., Cametti, C. Bioelectrochemistry 65 (2), pp. 163-169
				Cellular dielectric spectroscopy: A label-free technology for drug discovery Leung, G., Tang, H.R., McGuinness, R., Verdonk, E., Michelotti, J.M., Liu, V.F. JALA - Journal of the Association for Laboratory Automation 10 (4), pp. 258-269

				Impedance spectroscopy: A powerful tool for rapid biomolecular screening and cell culture monitoring K'Owino, I.O., Sadik, O.A. Electroanalysis 17 (23), pp. 2101-2113
				CMOS capacitance sensor that monitors cell viability Prakash, S.B., Bshire, P. Proceedings of IEEE Sensors 2005, art. no. 1597915, pp. 1177-1180
22	**Hydrogen peroxide biosensors based on direct electron transfer from plant peroxidases immobilized on self-assembled thiol-monolayer modified gold electrodes** **Electroanalysis, 2001, 13 (4), 284-288**	**Gaspar, S., Zimmermann, H., Gazaryan, I., Csöregi, E., Schuhmann, W.**	**7**	Bienzyme HRP-GOx-modified gold nanoelectrodes for the sensitive amperometric detection of glucose at low overpotentials Delvaux, M., Walcarius, A., Demoustier-Champagne, S. Biosensors and Bioelectronics 20 (8 SPEC. ISS.), pp. 1587-1594
				Effect of the electrostatic interaction on the redox reaction of positively charged cytochrome c adsorbed on the negatively charged surfaces of acid-terminated alkanethiol monolayers on a Au(111) electrode Langmuir 21 (4), pp. 1470-1474
				Mesoporous materials promoting direct electrochemistry and electrocatalysis of horseradish peroxidase Electroanalysis 17 (10), pp. 862-868
				Tobacco peroxidase as a new reagent for amperometric biosensors Journal of Analytical Chemistry 60 (6), pp. 629-638
				A peroxidase-tetrathiafulvalene biosensor based on self-assembled monolayer modified Au electrodes for the flow-injection determination of hydrogen peroxid Talanta 66 (5), pp. 1310-1319
				Structured thin films as functional components within biosensors Biosensors and Bioelectronics 21 (1), pp. 1-20

				Continuous measurements of a binding reaction using a capacitive biosensor Biosensors and Bioelectronics 21 (1), pp. 41-48
23	**Hydrogen peroxide sensitive biosensor based on plant peroxidases entrapped in Os-modified polypyrrole films** **Sensors and Actuators B, 2001, 72 (1). 63-68.**	**Gaspar, S., Habermüller, K., Csöregi, E., Schuhmann, W.**	**1**	Multienzyme electrochemical array sensor for determination of phenols and pesticides Talanta 65 (2 SPEC. ISS.), pp. 349-357
24	**A method for the design and study of enzyme microstructures formed by means of a flow-through microdispenser** **Anal. Chem, 2001**	**Gáspár, S., Mosbach, M., Wallman, L., Laurell, T., Csöregi, E., Schuhmann, W.**	**6**	Selective glucose detection based on the concept of electrochemical depletion of electroactive species in diffusion layer Wang, K., Xu, J.-J., Sun, D.-C., Wei, H., Xia, X.-H. Biosensors and Bioelectronics 20 (7), pp. 1366-1372
				A dual-electrode approach for highly selective detection of glucose based on diffusion layer theory: Experiments and simulation Wang, K., Zhang, D., Zhou, T., Xia, X.-H. Chemistry - A European Journal 11 (4), pp. 1341-1347
				Ink-jet microdispensing for the formation of gradients of immobilised enzyme activity Turcu, F., Hartwich, G., Schäfer, D., Schuhmann, W. Macromolecular Rapid Communications 26 (4), pp. 325-330
				Polyacrylonitrile enzyme ultrafiltration and polyamide enzyme microfiltration membranes prepared by diffusion and convection Dayal, R., Godjevargova, T. Macromolecular Bioscience 5 (3), pp. 222-228

				Demolding of high aspect ratio polymeric micro-patterning Yeo, L.P., Lam, Y.C., Chan-Park, M.B., Joshi, S.C., Hardt, D.E. International Journal of Nanoscience 4 (4), pp. 543-549
				Interaction of anti-adhesive silicone films with UV embossing resin Yan, Y.H., Chan-Park, M.B., Ching, W.C., Yue, C.Y. Applied Surface Science 249 (1-4), pp. 332-339
25	**Biosensors based on novel plant peroxidases: A comparative study Electrochim. Acta, 2000, 46 (2-3), 255-264.**	**Gaspar, S., Popescu, I.C., Gazaryan, I.G., Gerardo Bautista, A., Sakharov, I.Y., Mattiasson, B., Csöregi, E.**	**5**	Anthraquinone 2-carboxylic acid as an electron shuttling mediator and attached electron relay for horseradish peroxidase Electrochemistry Communications 7 (5), pp. 466-471
				Tobacco peroxidase as a new reagent for amperometric biosensors Journal of Analytical Chemistry 60 (6), pp. 629-638
				Carbon fibre-based microbiosensors for in vivo measurements of acetylcholine and choline Biosensors and Bioelectronics 21 (1), pp. 87-94
				Bi-enzyme alcohol biosensors based on genetically engineered alcohol oxidase and different peroxidases Microchimica Acta 152 (1-2), pp. 21-27
				Palm tree peroxidase-based biosensor with unique characteristics for hydrogen peroxide monitoring Biosensors and Bioelectronics 21 (5), pp. 742-748
26	**PFeW11-doped polymer film modified electrodes and their electrocatalytic activity for H2O2 reduction Anal. Chim. Acta, 385 (1999) 111 - 117.**	**Gaspar, S., Muresan, L., Patrut, A., Popescu, I.C**	**1**	Voltammetric behaviour study of creatinine at phosphomolybdic-polypyrrole film modified electrode Journal of Electroanalytical Chemistry 585 (1), pp. 28-34
	On the limits of ellipsoidal models when			Effect of the shape of human erythrocytes on the evaluation of

27	**analyzing dielectric behavior of living cells. Emphasis on red blood cells** **Annals of The New York Academy of Sciences 1999**	**E.Gheorghiu**	**1**	the passive electrical properties of the cell membrane Di Biasio, A., Cametti, C. Bioelectrochemistry 65 (2), pp. 163-169
28	**Real-time monitoring of yeast cell division by dielectric spectroscopy** **Biophys. J 1999**	**K. Asami, E. Gheorghiu, T. Yonezawa**	**4**	Nonlinear dielectric spectroscopy of live cells using superconducting quantum interference device Nawarathna, D., Claycomb, J.R., Miller Jr., J.H., Benedik, M.J. Applied Physics Letters 86 (2), art. no. 023902, pp. 023902-1-023902-3
				Boundary-element calculations for dielectric behavior of doublet-shaped cells Sekine, K., Watanabe, Y., Hara, S., Asami, K. Biochimica et Biophysica Acta - General Subjects 1721 (1-3), pp. 130-138
				Combined spectrophotometric-electrochemical impedance imaging system for biofilm research Patel, C., Dunn, S., Takhistov, P. JALA - Journal of the Association for Laboratory Automation 10 (1), pp. 16-23
				Impedance spectroscopy flow cytometry: On-chip label-free cell differentiation Cheung, K., Gawad, S., Renaud, P. Cytometry Part A 65 (2), pp. 124-132
29	**Characterizing cellular systems by means of dielectric spectroscopy** **Bioelectromagnetics, 1996**	**E.Gheorghiu**	**1**	Cellular dielectric spectroscopy: A label-free technology for drug discovery Leung, G., Tang, H.R., McGuinness, R., Verdonk, E., Michelotti, J.M., Liu, V.F. JALA - Journal of the Association for Laboratory Automation 10 (4), pp. 258-269

30	**Quantitative analysis of impedance spectra of organs during ischemia Annals of The New York Academy of Sciences 1999**	**Gheorghiu, M., Gersing, E., Gheorghiu, E.**	**2**	An electrical bio-impedance analyzer for implantable medical devices Min, M., Parve, T. Conference Record - IEEE Instrumentation and Measurement Technology Conference 3, art. no. 1604487, pp. 1823-1828
				Temperature dependence of tissue impedivity in electrical impedance tomography of cryosurgery Edd, J.F., Horowitz, L., Rubinsky, B. IEEE Transactions on Biomedical Engineering 52 (4), pp. 695-701
31	**Modification of molecular properties of some dyes in Sodium Dodecyl Sulphate (SDS) micellar aqueous solution Fresenius'Journal of Analytical Chemistry, 1996**	**Bercu, C., Oncescu, T., Lupan, L., Bandula, R., Vasilescu, M., Sandu, T., Mitran, L.**	**1**	Correlation of molecular properties of some acridine and thiazine dyes in micellar solution with their electronic structure Revue Roumaine de Chimie 43 (7), pp. 671-673
32	**Monitoring cell cycle by impedance spectroscopy: Experimental and theoretical aspects Bioelectrochem. Bioenerg1998**	**E.Gheorghiu**	**1**	Studies of deionization and impedance spectroscopy for blood analyzer Kwong, C.C., Li, N., Ho, C.-M. Proceedings of SPIE - The International Society for Optical Engineering 6003, art. no. 60030N
33	**Shape effects on the dielectric behaviour of arbitrarily shaped particles with particular reference to biological cells Bioelectrochemistry and Bioenergetics, 1996**	**E.Gheorghiu**	**2**	Boundary-element calculations for dielectric behavior of doublet-shaped cell Sekine, K., Watanabe, Y., Hara, S., Asami, K. Biochimica et Biophysica Acta - General Subjects 1721 (1-3), pp. 130-138
				Effect of the shape of human erythrocytes on the evaluation of the passive electrical properties of the cell membrane Di Biasio, A., Cametti, C. Bioelectrochemistry 65 (2), pp. 163-169
34	**"Optical matrix elements in tight-binding models with overlap", Phys. Rev. B. 72,**	**Titus Sandu**	**4**	Thermal stability of low resistance ohmic contacts between Ti and Se-passivated N-type Si(001) Proceedings - Electrochemical

	125105, 2005; cond-mat/0507204.			Society PV 2003-31, pp. 316-325 Electronic and optical properties of beryllium chalcogenide/silicon heterostructures Physical Review B - Condensed Matter and Materials Physics 73 (23), art. no. 235307
35	**"Band bowing in $BeSe_xTe_{1-x}$", AIP Conference Preceedings vol. 772, p. 175, 2005.**	**T. Sandu and W. P. Kirk**	**1**	Monolayer passivation of silicon(0 0 1) surface by selenium Applied Surface Science 253 (10), pp. 4578-4580
36	**"How membrane cholesterol depletion regulates Na+ transport in A6 renal epithelial cells ", /J Am Soc Nephrol /16, 2005 (abstract)**	**C.M. Balut*, D. Jans, W. Van Driessche, P. Steels**	**2**	Cholesterol Effect on the Dipole Potential of Lipid Membranes – T Starke-Peterkovic, N Turner, MF Vitha, MP Waller … - Biophysical Journal Evaluation of cholesterol content and impact on antigen exposure in the outer lipid bilayer of adult … H TALLIMA, M HAMADA, R EL RIDI - Parasitology
Total/An			**50**	
		2006		
37	**"Membrane Cholesterol Extraction decreases Na+ Reabsorption in A6 Renal Epithelia", /AJP - - Cel, /290 (1), C87-94, 2006, Epub Aug 17, 2005**	**C.M. Balut*, P. Steels, M. Radu, M. Ameloot, W. Van Driessche, D. Jans,**	**2**	Cholesterol Effect on the Dipole Potential of Lipid Membranes – T Starke-Peterkovic, N Turner, MF Vitha, MP Waller … - Biophysical Journal Evaluation of cholesterol content and impact on antigen exposure in the outer lipid bilayer of adult … H TALLIMA, M HAMADA, R EL RIDI - Parasitology
38	Opposite effects of Ni^{2+} on Xenopus and rat ENaC expressed in Xenopus oocytes. Am J Physiol Cell 289(4): C946-58	**Cucu D, Simaels J, Eggermont J, Van Driessche W, Zeiske W**	**2**	Subunit-dependent cadmium and nickel inhibition of acid-sensing ion channels Developmental Neurobiology 67 (1), pp. 97-10 Effect of divalent heavy metals on epithelial Na+ channels in A6 cells American Journal of Physiology - Renal Physiology 293 (1), pp. F236-F244
39	**"Spin tunneling through an indirect barrier", Phys. Rev. B. 73, 075313, 2006; cond-mat/0601297**	**Titus Sandu, Athanasios Chantis, and Radu Iftimie**	**1**	Suppression of high-resistance phases of Ni silicide by Se passivation of Si(100) IEEE Transactions on Electron Devices 53 (4), pp. 719-723
40	**Measuring living cells**	**E.Gheorghiu**	**1**	Bacteria counting with

	using dielectric spectroscopy **Bioelectrochemistry and Bioenergetics, 1996**			impedance spectroscopy in a micro probe station Jo̧nsson, M., Welch, K., Hamp, S., Strømme, M Journal of Physical Chemistry B 110 (20), pp. 10165-10169
41	**A method for the design and study of enzyme microstructures formed by means of a flow-through microdispenser** **Anal. Chem, 2001**	**Gáspár, S., Mosbach, M., Wallman, L., Laurell, T., Csŏregi, E., Schuhmann, W.**	**3**	Glucose oxidation catalyzed by liposomal glucose oxidase in the presence of catalase-containing liposomes Yoshimoto, M., Miyazaki, Y., Kudo, Y., Fukunaga, K., Nakao, K. Biotechnology Progress 22 (3), pp. 704-709
				SECM visualization of spatial variability of enzyme-polymer spots. Part 2: Complex interference elimination by means of selection of highest sensitivity sensor substructures and artificial neural networks Maciejewska, M., Schäfer, D., Schuhmann, W. Electroanalysis 18 (19-20), pp. 1916-1928
				Pore diffusion studies with immobilized glucose oxidase plus catalase membranes Dayal, R., Godjevargova, T. Enzyme and Microbial Technology 39 (6), pp. 1313-1318
42	**Hydrogen peroxide sensitive biosensor based on plant peroxidases entrapped in Os-modified polypyrrole films** **Sensors and Actuators B, 2001, 72 (1). 63-68.**	**Gaspar, S., Habermüller, K., Csöregi, E., Schuhmann, W.**	**6**	An amperometric biosensor for uric acid determination prepared from uricase immobilized in polypyrrole film S Artificial Cells, Blood Substitutes, and Biotechnology 34 (3), pp. 367-380
				Enzyme electrochemistry - Biocatalysis on an electrode Australian Journal of Chemistry 59 (4), pp. 233-256
				Bienzyme sensors based on novel polymethylferrocenyl dendrimers Analytical and Bioanalytical Chemistry 385 (7), pp. 1209-1217
				Electrochemical sensors based on conducting polymer-polypyrrole

				Electrochimica Acta 51 (27), pp. 6025-6037
				Electrocatalytical properties of polymethylferrocenyl dendrimers and their applications in biosensing Bioelectrochemistry 69 (1), pp. 65-73
				The interaction of the polyphenylacetylene surface with biological environments studied by XPS, RAIRS anJournal of Materials Science: Materials in Medicine 17 (9), pp. 779-787d biological tests
43	**Biosensors based on novel plant peroxidases: A comparative study** **Electrochim. Acta, 2000, 46 (2-3), 255-264.**	**Gaspar, S., Popescu, I.C., Gazaryan, I.G., Gerardo Bautista, A., Sakharov, I.Y., Mattiasson, B., Csöregi, E.**	**1**	Kinetics and thermal stability of two peroxidase isozymes from Eupatorium odoratum Applied Biochemistry and Biotechnology 128 (3), pp. 215-226
44	**Real-time monitoring of yeast cell division by dielectric spectroscopy** **Biophys. J 1999**	**K. Asami, E. Gheorghiu, T. Yonezawa**	**4**	Dielectric dispersion in biological cells of complex geometry simulated by the three-dimensional finite difference method three-dimensional finite difference method Asami, K Journal of Physics D: Applied Physics 39 (3), pp. 492-499
				A constant phase element sensor for monitoring microbial growth Biswas, K., Sen, S., Dutta, P.K. Sensors and Actuators, B: Chemical 119 (1), pp. 186-191
				Relaxation processes due to the electrode-electrolyte interface in ionic solutions Sanabria, H., Miller, J.H. Physical Review E - Statistical, Nonlinear, and Soft Matter Physics 74 (5), art. no. 051505

				Broadband permittivity measurements of liquid and biological samples using microfluidic channels Booth, J.C., Mateu, J., Janezic, M., Baker-Jarvis, J., Beall, J.A. IEEE MTT-S International Microwave Symposium Digest, art. no. 4015288, pp. 1750-1753
45	**PFeW11-doped polymer film modified electrodes and their electrocatalytic activity for H2O2 reduction** **Anal. Chim. Acta, 385 (1999) 111 - 117.**	**Gaspar, S., Muresan, L., Patrut, A., Popescu, I.C**	**1**	Electrochemical characterization of glassy carbon electrodes modified with hybrid inorganic-organic single-layer of α-Keggin type polyoxotungstates Journal of Solid State Electrochemistry 10 (1), pp. 10-17
46	**Modification of molecular properties of some dyes in Sodium Dodecyl Sulphate (SDS) micellar aqueous solution** **Fresenius'Journal of Analytical Chemistry, 1996**	**Bercu, C., Oncescu, T., Lupan, L., Bandula, R., Vasilescu, M., Sandu, T., Mitran, L.**	**1**	Micellar effects and reactant incorporation in reduction of toluidine blue by ascorbic acid Arikan, B., Tuncay, M. Dyes and Pigments 64 (1), pp. 1-8
47	**Quantitative analysis of impedance spectra of organs during ischemia** **Annals of The New York Academy of Sciences 1999**	**Gheorghiu, M., Gersing, E., Gheorghiu, E.**	**1**	Hyperthermia today: Electric energy, a new opportunity in cancer treatment Fiorentini, G., Szasz, A. Journal of Cancer Research and Therapeutics 2 (2), pp. 41-46
48	**Monitoring cell cycle by impedance spectroscopy: Experimental and theoretical aspects** **Bioelectrochem. Bioenerg1998**	**E.Gheorghiu**	**2**	Dielectric dispersion in biological cells of complex geometry simulated by the three-dimensional finite difference method Asami, K. Journal of Physics D: Applied Physics 39 (3), pp. 492-499
				Dielectric properties of E. coli cell as simulated by the three-shell spheroidal model Bai, W., Zhao, K.S., Asami, K. Biophysical Chemistry 122 (2), pp. 136-142
49	Dielectric behavior of budding yeast in cell separation	**K. Asami, E. Gheorghiu, T. Yonezawa**	**2**	Effective ac response of graded colloidal suspensions Wei, E.-B., Dong, L., Yu, K.W. Journal of Applied Physics 99

	BBA 1998			(5), art. no. 054101
				Bacteria counting with impedance spectroscopy in a micro probe station Jönsson, M., Welch, K., Hamp, S., Strømme, M Journal of Physical Chemistry B 110 (20), pp. 10165-10169
50	**Shape effects on the dielectric behaviour of arbitrarily shaped particles with particular reference to biological cells** **Bioelectrochemistry and Bioenergetics, 1996**	**E.Gheorghiu**	**1**	Dielectric dispersion in biological cells of complex geometry simulated by the three-dimensional finite difference method Asami, K. Journal of Physics D: Applied Physics 39 (3), pp. 492-499
51	**The resting potential in relation to the equivalent complex permittivity of a spherical cell suspension** **Phys. Med. Biol, 1993**	**E.Gheorghiu**	**2**	Impedance spectroscopy of α-β tubulin heterodimer suspensions Sanabria, H., Miller Jr., J.H., Mershin, A., Luduena, R.F., Kolomenski, A.A., Schuessler, H.A., Nanopoulos, D.V. Biophysical Journal 90 (12), pp. 4644-4650
				Broadband permittivity measurements of liquid and biological samples using microfluidic channel Booth, J.C., Mateu, J., Janezic, M., Baker-Jarvis, J., Beall, J.A. IEEE MTT-S International Microwave Symposium Digest, art. no. 4015288, pp. 1750-1753
52	**The derivation of cellular properties from dielectric spectroscopy data** **Bioelectrochemistry and Bioenergetics, 1996**	**Mihai, C.-M., Mehedintu, M., Gheorghiu, E.**	**2**	Dielectric properties of E. coli cell as simulated by the three-shell spheroidal model Bai, W., Zhao, K.S., Asami, K Biophysical Chemistry 122 (2), pp. 136-142
				Dielectric spectroscopy of Anabaena 7120 protoplast suspensions Zhao, K., Bai, W., Mi, H. Bioelectrochemistry 69 (1), pp.

				49-57
53	**"Dynamics of a two-level system coupled with a quantum oscillator: The very strong coupling limit", Phys. Rev. B. 74, 113405 (2006); cond-mat/0608483**	**Titus Sandu**	**0**	
54	**"Electronic and optical properties of beryllium chalcogenides/silicon", Phys. Rev. B. 73, 235307 (2006); cond-mat/0608514.**	**Titus Sandu and W. P. Kirk**	**0**	
	TOTAL/An		**28**	
2007				
55	**"Sensing at nanoscale via structured interfaces" Eur Biophys J. (2007) 36 S157**	**M. Gheorghiu, S. David, C. Polonschii, E. Gheorghiu**	**0**	
56	**High temporal resolution monitoring of fermentations using an on-line amperometric flow-through microdetector, Electroanalysis, 2007, 19(1), 43-48.**	**K. Zor, S. Gaspar, M. Hashimoto, H. Suzuki, E. Csoregi,**	**0**	
57	**Ultramicrobiosensor for the selective detection of glutamate, Electroanalysis, 2007, 19(1), 71-78.**	**O.M. Schuvailo, S. Gaspar, A.P. Soldatkin, E. Csoregi**	**0**	
58	**High temporal resolution monitoring of fermentations using an on-line amperometric flow-through microdetector, Electroanalysis, 2007, 19(1), 43-48.**	**K. Zór, S. Gáspár, M. Hashimoto, H. Suzuki, E. Csöregi**	**0**	
59	**Miniaturized on-line digestion system for the sequential identification and characterization of protein analytes, J. Chromatography A, 2007, 1146(1), 17-22.**	**M. Hedstrom, C.E. Grey, S. Gaspar, B. Mattiasson**	**1**	[1] C. E. Grey, M. Hedstrom, P. Adlercreutz, A mass spectrometric investigation of native and oxidatively inactivated chloroperoxidase, Chembiochem 2007, 8, 1055
	Shape effects on the dielectric behaviour of			Dielectric modelling of cell division for budding and fission

60	**arbitrarily shaped particles with particular reference to biological cells** **Bioelectrochemistry and Bioenergetics, 1996**	**E.Gheorghiu**	**1**	yeast Asami, K., Sekine, K. Journal of Physics D: Applied Physics 40 (4), art. no. 033, pp. 1128-1133
61	**Hydrogen peroxide biosensors based on direct electron transfer from plant peroxidases immobilized on self-assembled thiol-monolayer modified gold electrodes** **Electroanalysis, 2001, 13 (4), 284-288**	**Gaspar, S., Zimmermann, H., Gazaryan, I., Csöregi, E., Schuhmann, W.**	**4**	Self-assembled layer of thiolated protein G as an immunosensor scaffold Analytical Chemistry 79 (1), pp. 350-354
				Direct electron transfer of hemoglobin immobilized in multiwalled carbon nanotubes enhanced grafted collagen matrix for electrocatalytic detection of hydrogen peroxide Electroanalysis 19 (7-8), pp. 841-846
				Investigation of heterogeneous electrochemical processes using multi-stream laminar flow in a microchannel Lab on a Chip - Miniaturisation for Chemistry and Biology 7 (4), pp. 441-447
				DNA-directed immobilization of horseradish peroxidase-DNA conjugates on microelectrode arrays: Towards electrochemical screening of enzyme libraries Chemistry - A European Journal 13 (18), pp. 5223-5231
62	**A method for the design and study of enzyme microstructures formed by means of a flow-through microdispenser** **Anal. Chem, 2001**	**Gáspár, S., Mosbach, M., Wallman, L., Laurell, T., Csöregi, E., Schuhmann, W.**	**5**	SECM visualization of spatial variability of enzyme-polymer spots. 1. Discretisation and interference elimination using artificial neural networks Schäfer, D., Maciejewska, M., Schuhmann, W. Biosensors and Bioelectronics 22 (9-10), pp. 1887-1895
				Scanning electrochemical microscopy for direct imaging of reaction rates Wittstock, G., Burchardt, M., Pust, S.E., Shen, Y., Zhao, C. Angewandte Chemie - International Edition 46 (10), pp. 1584-1617

				DNA-directed immobilization of horseradish peroxidase-DNA conjugates on microelectrode arrays: Towards electrochemical screening of enzyme libraries Fruk, L., Müller, J., Weber, G., Narváez, A., Domínguez, E., Niemeyer, C.M. Chemistry - A European Journal 13 (18), pp. 5223-5231
				Review: Recent applications of scanning electrochemical microscopy to the study of charge transfer kinetics Lu, X., Wang, Q., Liu, X. Analytica Chimica Acta 601 (1), pp. 10-25
				Advances in the application of scanning electrochemical microscopy to bioanalytical systems Roberts, W.S., Lonsdale, D.J., Griffiths, J., Higson, S.P.J. Biosensors and Bioelectronics 23 (3), pp. 301-318
63	**Hydrogen peroxide sensitive biosensor based on plant peroxidases entrapped in Os-modified polypyrrole films** **Sensors and Actuators B, 2001, 72 (1). 63-68.**	**Gaspar, S., Habermüller, K., Csöregi, E., Schuhmann, W.**	**3**	A hydrogen peroxide sensor prepared by electropolymerization of pyrrole based on screen-printed carbon paste electrodes Sensors 7 (3), pp. 239-250
				Rapid determination of phenolic compounds in water samples by alternating-current oscillopolarographic titration Journal of Environmental Sciences 19 (5), pp. 622-627
				Glucose biosensor based on immobilization of glucose oxidase in poly(o-aminophenol) film on polypyrrole-Pt nanocomposite modified glassy carbon electrode Biosensors and Bioelectronics 22 (12), pp. 2898-2905

64	Dielectric behavior of budding yeast in cell separation **BBA 1998**	**K. Asami, E. Gheorghiu, T. Yonezawa**	**2**	Integrated electrochemical sensor array for on-line monitoring of yeast fermentations Krommenhoek, E.E., Gardeniers, J.G.E., Bomer, J.G., Li, X., Ottens, M., Van Dedem, G.W.K., Van Leeuwen, M., (...), Van Den Berg, A. Analytical Chemistry 79 (15), pp. 5567-5573
				Dielectric analysis of chitosan gel beads suspensions: Influence of low crosslinking agent concentration on the dielectric behavior Ni, N., Zhao, K. Journal of Colloid and Interface Science 312 (2), pp. 256-264
65	**Biosensors based on novel plant peroxidases: A comparative study** **Electrochim. Acta, 2000, 46 (2-3), 255-264.**	**Gaspar, S., Popescu, I.C., Gazaryan, I.G., Gerardo Bautista, A., Sakharov, I.Y., Mattiasson, B., Csöregi, E.**	**2**	Covalent attachment of ferrocene to soybean peroxidase glycans: Electron transfer mediation to redox enzyme Bioconjugate Chemistry 18 (2), pp. 524-529
				Polyclonal antibodies mediated immobilization of a peroxidase from ammonium sulphate fractionated bitter gourd (Momordica charantia) proteins Biomolecular Engineering 24 (2), pp. 223-230
66	**Quantitative analysis of impedance spectra of organs during ischemia** **Annals of The New York Academy of Sciences 1999**	**Gheorghiu, M., Gersing, E., Gheorghiu, E.**	**3**	Hyperthermia, a modality in the wings Szasz, A. Journal of Cancer Research and Therapeutics 3 (1), pp. 56-66
				Improvement of lock-in electrical bio-impedance analyzer for implantable medical devices Min, M., Parve, T. IEEE Transactions on Instrumentation and Measurement 56 (3), pp. 968-974
				Dielectric properties of biological tissues in which cells are connected by communicating junctions Asami, K. Journal of Physics D: Applied Physics 40 (12), art. no. 027, pp. 3718-3727

67	**Real-time monitoring of yeast cell division by dielectric spectroscopy Biophys. J 1999**	**K. Asami, E. Gheorghiu, T. Yonezawa**	**3**	Dielectric modelling of cell division for budding and fission yeast Asami, K., Sekine, K. Journal of Physics D: Applied Physics 40 (4), art. no. 033, pp. 1128-1133
				Protein influence on the plasma membrane dielectric properties: In vivo study utilizing dielectric spectroscopy and fluorescence microscopy Stoneman, M., Chaturvedi, A., Jansma, D.B., Kosempa, M., Zeng, C., Raicu, V. Bioelectrochemistry 70 (2), pp. 542-550
				On-line biomass measurements in bioreactor cultivations: Comparison study of two on-line probes Kiviharju, K., Salonen, K., Moilanen, U., Meskanen, E., Leisola, M., Eerikaïnen, T. Journal of Industrial Microbiology and Biotechnology 34 (8), pp. 561-566
68	**Monitoring cell cycle by impedance spectroscopy: Experimental and theoretical aspects Bioelectrochem. Bioenerg1998**	**E.Gheorghiu**	**1**	Dielectric modelling of cell division for budding and fission yeast Asami, K., Sekine, K. ournal of Physics D: Applied Physics 40 (4), art. no. 033, pp. 1128-1133
69	**"Comments on Spin-dependent tunneling through a symmetric semiconductor barrier: The Dresselhaus effect" to be published into Phys Rev. B.(2007)**	**Titus Sandu**	**0**	
	TOTAL/An		**25**	
69	**TOTAL(2004-2007)**		**177**	

ANEXA 5.1

5.CRITERII SECUNDARE DE PERFORMANTA

5.1 Lucrari stiintifice (tehnice) publicate in reviste de specialitate fara cotatie ISI:

Anul	Titlul lucrarii stiintifice	Autori
2004	Evaluarea cantitativa a alterarilor tisulare induse de conditii ischemice, – Editura Printech, 2004, ISBN 973-718-118-2	M.Gheorghiu
2006	"Characterization of Langmuir Blodgett Films from some new phthalocyanines derivatives",,Analele Universitatii Bucuresti Chimie" 2006	A.Dragan, O.Cinteza, V.Magearu

5.2 Lucrari stiintifice prezentate la conferinte internationale cu comitet de program

Nr Crt.	Comunicare	Conferinta	Autor Institutul
2007			
1	Dielectric modeling and nonlinear time series analysis of biological systems **"Monitoring cellular systems by Dielectric Spectroscopy; appraisal of membrane potential and shape factors"**	MEETING THE CHALLENGES OF THE 21ST CENTURY - NOVEL APPLICATIONS OF BROADBAND DIELECTRIC SPECTROSCOPY", NATO ADVANCED RESEARCH WORKSHOP. SUZDAL, RUSIA. JULY 2007	Eugen Gheorghiu Invited lecturer
2	Biological characterisation of nano-patterned bio-surfaces using timebased impedance spectroscopy	**ESF – EMBO Symposium** Probing interactions between nanoparticles/biomaterials and biological systems – alternative approaches to bio-toxicity Sant Feliu de Guixols (Costa	Mihaela Gheorghiu Sorin David, Cristina Polonschii, Eugen Gheorghiu (oral)

		Brava) Spain 3-8 Noiembrie 2007	
3	**DETECTION OF TOXINS AND PATHOGENS IN LIQUID SAMPLES**	**3rd International Symposium on RECENT ADVANCES IN FOOD ANALYSIS** Prague, Czech Republic 7-9 Nov 2007	(oral)
4	SPR Assays with Magnetic Actuation for the Immuno-Affinity Detection of Target Cells	**ESF-EMBO Symposium Biomagnetism and Magnetic Biosystems Based on Molecular Recognition Processes** Sant Feliu de Guixols (Costa Brava) Spain 22-27 September 2007	Mihaela Gheorghiu, Sorin David, Cristina Polonschii, Eugen Gheorghiu
5	Assessment of bio-interfaces using time based differential impedance spectroscopy		Mihaela Gheorghiu, Sorin David, Cristina Polnoschii, Dumitru Bratu Eugen Gheorghiu
6	Assessment of fish behavior and water quality by monitoring and time series analysis of fish dynamics	**ECI XII XII EUROPEAN CONGRESS OF ICHTHYOLOGY** Cavtat (Dubrovnik), Croatia 9–13 September 2007	Gheorghiu E., Bratu D., Polonschii C. Gheorghiu M.
7	Sensing the cell-substrate interaction towards development of “smart” surfaces		M. Gheorghiu, S. David, A. Ursu E. Gheorghiu

8	MULTI FREQUENCY, MULTI CHANNEL, DIFFERENTIAL IMPEDANCE ANALYZER FOR RAPID ASSAYS	**The 13th International Conference on Electrical Bioimpedance & The 8th Conference on Electrical Impedance Tomography** ICEBI 07, Graz, Austria, 29.08.2007	Cristina Polonschii, Dumitru Bratu Eugen Gheorghiu
9	Appraisal of cellular systems using impedance spectroscopy – theoretical and experimental aspects		Eugen Gheorghiu
10	Dual SPR-Impedance Measurement System for detection of bioaffinity interactions		Sorin David, Mihaela Gheorghiu, Cristina Polonschii and Eugen Gheorghiu
11	Nonlinear Analysis of Cell Cycle	**Chaos and Nonlinear Dynamics: Advances and Perspectives** **A conference celebrating the 60th birthday of Celso Grebogi** 17–21 September 2007, Aberdeen, UK	Eugen Gheorghiu
12	Biosensing and controlled interaction with cellular systems via structured interfaces	**VIth European Biophysics Congress Imperial College** Londra, UK, 14 - 18 Iulie 2007	Mihaela Gheorghiu, Sorin David, Cristina Polonschii, Dumitru Bratu, Eugen Gheorghiu
13	Biosensing via structured interfaces at nanoscale	**Biosurf VII Functional Interfaces for Directing Biological Response**, Zurich, Elvetia, 29-31 August 2007	Mihaela Gheorghiu, Sorin David, Cristina Polonschii, Dumitru Bratu, Eugen Gheorghiu
14		**Conferinta Nationala de Biofizica,**	Mihaela Gheorghiu, Sorin David, Cristina

		Mai Bucuresti**,** Romania	Polonschii, Dumitru Bratu, Eugen Gheorghiu
15	"Assessment of interfacial changes due to bioaffinity interactions using a combined, multichannel SPR-Impedance Measurement System",	**International Symposium, Molecular Plasmonics**, 10-12 May Jena, Germany 2007	Mihaela Gheorghiu, Sorin David, Cristina Polonschii, Dumitru Bratu, Eugen Gheorghiu
2006			
16	BioDynsensing Sensing through dynamics of (bio)interfaces or/and cellular platforms	**Workshop on Physics of Sensors and Detection Systems** Ispra, 6th -7th December 2006	Eugen Gheorghiu
17	Pitfalls in Revealing Fine Interfacial Processes using SPR Assays	**Solid/Fluid Interfaces** Universitätszentrum Obergurgl, Austria, 9-14 September 2006	Cristina Polonschii
18	Revealing cellular effects of different stimuli by impedance spectroscopy: Theoretical and Experimental Aspects	**Lector invitat** Montpellier 04december2006	Eugen Gheorghiu
19	New avenues, "hot topics" in Biodynsensing		Mihaela Gheorghiu
20	Potential in the field of Biosystem analysis and Biosensing	**Balkan Medicine towards FP7** May 4-5, 2006 Bucharest, Romania Chamber of Commerce and Industry of Romania	Eugen Gheorghiu
	"Biodynsensing, Sensing		

21	through dynamics of (bio)interfaces & cellular platforms"	**International Conference Biosensing and Biodynamics: From Basics to Applications** 18-21 May 2006 ICBB 2006	Eugen Gheorghiu
22	"The effect of cadmium on the EpithelialNa^+ Channel(ENaC) from kidney cells"		Daniela Cucu
23	Imaging mitochondrial and cytosolic pH in living MDCK cells subjected to metabolic inhibition"		Corina Balut
24	New avenues, "hot topics" in Biodynsensing		Mihaela Gheorghiu
25	"Mitochondrial pH changes in MDCK cells subjected to metabolic inhibition observed with one-photon confocal microscopy"	**Biophysical Society Meeting,** Salt Lake City, USA, Feb. 18-22, 2006	**C.M. Balut**, M. vandeVen, I. Smets, M. Ameloot, P. Steels
26	"Imaging mitochondrial and cytosolic pH in living MDCK cells subjected to metabolic inhibition"	**Keystone Symposia – Metabolomics: Bioenergetics to Apoptosis**, Snowbird, Utah, USA, April 2-7, 2006	**C.M. Balut**, M. vandeVen, I. Smets, M. Ameloot, P. Steels
2005			
27	Biosensing platforms using Dielectric Assays	**EERSS Program** NUS, Oct. 2005,	Eugen Gheorghiu
28	On the electrode related problems in bioimpedance measurements		Mihaela Gheorghiu
29	"How membrane cholesterol depletion regulates Na_+ transport in A6 renal epithelial cells"	**American Society of Nephrology – Renal Week,** Philadelphia, Pennsylvania, USA, Nov	**C.M. Balut**, D. Jans, W. Van Driessche,

		10-13, 2005	P. Steels
30	Assessment of Cell Cycle by Chaos theory	**CSCS-15** **15th INTERNATIONAL CONFERENCE ON CONTROL SYSTEMS AND COMPUTER SCIENCE** May 25-27, 2005 POLITEHNICA University of Bucharest	Eugen Gheorghiu
31	Membrane cholesterol extraction attenuates Na_+ transport activation in A6 renal epithelia	**Fall meeting of the Belgian Physiological Society,** Antwerp, Belgium, November 19, 2005	**C.M. Balut**, P Steels, W Van Driessche, D Jans
32	Anti-angiogenesis effect of Somatostatin/analogues: case study – hepatocellular carcinoma	**Novartis Young Investigator Meeting**, Barcelona, Spain	Mihaela Gheorghiu
33	Membrane cholesterol as modulating factor of ion transport in renal epithelial cells"	**International Conference on Aquaporins**, Genval, Belgium, September 10-13, 2005	**C.M. Balut**, D. Jans, W. van Driessche, P. Steels
2004			
34	Biosensor analysis by impedance/dielectric spectroscopy	**Seminar** presented at NUS -26 April 2004 -19 April 2004	Eugen Gheorghiu
35	Revealing Cellular Properties by Impedance Spectroscopy and Time Series Analysis– theoretical and practical aspects		
36	Analyte Detection Using Differential Impedance Measurement		

37	"Impedance spectroscopy interrogation of modified sensors for immuno-sensing"	**XII International Conference on Electrical Bioimpedance & V Electrical Impedance Tomography,** Gdansk, 2004	M. Gheorghiu, S. David, D. Bratu, E. Gheorghiu
38	"IS on single cells: from modeling to fitting real data"		
39	Pot fi competitive Centrele de Cercetare din România? Un posibil răspuns ilustrat de Centrul Internațional de Biodinamică	Conferința **„MIGRAȚIA TINERILOR CERCETĂTORI ROMÂNI - PERFORMANȚE ŞI CĂI DE ÎNTOARCERE 2004**	Eugen Gheorghiu
40	Studiul canalului epitelial de Na+ prin metode electrofiziologice: interactiunea cu Ni2+		Daniela Cucu
41	Modeling biosystems – facts and perspectives !! Understanding the dynamics of the interfacial processes – towards improving the biosensor analysis	**WORKSHOP ON FUTURE NETWORKING BETWEEN UNESCO-AFFILIATED LIFE SCIENCES RESEARCH CENTRES IN EASTERN AND CENTRAL EUROPE,** Paris, France 2004	Mihaela Gheorghiu
42	Biosensor analysis by impedance/dielectric assay		Sorin David
43	Role of lipids environment on ion exchange in cell membranes		Corina Balut
44	Investigating Cellular Systems by Impedance Spectroscopy and Time Series Analysis: theoretical & practical		Eugen Gheorghiu

	aspects		
45	**Impedimetric approach for detection of target analytes: from low molecular weight contaminants to living cells**	**The Eighth World Congress on Biosensors** 24-26may2004 Granada, Spain	M. Gheorghiu, S. David and E. Gheorghiu
46	**Time based differential impedance spectroscopy an effective method for biosensor analysis**		E. Gheorghiu, D. Bratu, S. David, M. Gheorghiu
47	**Single cell monitoring: from theory to experimental evidence**	**Symposium on Biodynamics & Bioanalysis**, Bucharest, September 2004	Eugen Gheorghiu
48	**Quantitative Analysis Of Blood Cells**		Corina Balut
49	**Affinity Biosensing**		Mihaela Gheorghiu
50	**Towards a non invasive assay to monitor single cells by impedance/dielectric spectroscopy**	**SPIE Conference** Dec 2004	Eugen Gheorghiu
51	**"Towards a distributed system to monitor / assess drinking water quality: detection of pathogen microorganisms and toxins using a novel impedimetric assay on biosensors"**	**Technological and Scientific Conference Compliance with UE requirements of water supply and sewage systems,** Bucharest 2004	M. Gheorghiu, S. David, D. Bratu, E. Gheorghiu
52	"Membrane Cholesterol Depletion in A6 cells depresses activated sodium transport and elicits a transient chloride secretion during a hypotonic ***shock"***	**American Society of Nephrology – Renal Week,** St Louis, Missouri, USA, Oct. 28-Nov 1st, 2004	P. Steels, D. Jans, W. van Driessche, **C.M. Balut**
52	**Total**		

5.3 : **Modele fizice, modele experimentale, modele funcționale, prototipuri, normative, proceduri, metodologii, reglementări şi planuri tehnice noi sau perfecționate, realizate în cadrul programelor naționale sau comandate de beneficiar**

Nr. Crt.	Proiect Contract	Numarul contractului/Anul	Rezultat
		2004	
1.	Monitorizarea on-line a concentratiei de *Lactobacillus plantarum* in procesele fermentative	01-7-CPD-095/2001	Dezvoltarea unei noi metode de analiza si a echipamentelor de masura aferente, pentru controlul automat al proceselor de fermentatie lactica, prin monitorizarea continua, on-line, a concentratiei de cellule vii in suspensie Metoda si dispozitiv de monitorizare a proceselor biotehnologice prin determinarea online a concentratiei de cellule
2.	Biotech-sterist Procedeu de evaluare rapida a puritatii microbiologice in biotehnologii	034-PED-3344/2003	Metoda analitica de control al sterilizarii utilizand masuratori de spectroscopie
		2005	
3.	CERES-membrane Rolul organizarii si dinamicii membranelor asupra comportarii sistemelor celulare si al raspunsului acestora la stimuli externi.	338/2004	Metoda rapida de analiza a modificarilor induse de radiatiile ionizante la nivelul membranelor celulare
4.	CERES-ciclu cellular Metoda de evaluare a efectelor dozelor mici de radiatii asupra progresiei pe ciclu celular	3-132/2003	Metoda de evaluare a efectelor dozelor mici de radiatii asupra progresiei pe ciclu celular
		2006	
5.	Laborator mobil de analiza apei (control microbiologic, contaminarea cu metale) in acord cu directivele europene AQUALAB	286/2006	Metoda de detectie incarcatura microbiana totala prin luminometrie Obiectiv:Validarea metodei si realizarea curbelor de calibrare specifice
6.			Metoda de detectie a metalelor grele prin Voltametrie de Stripping Anodic (ASV) Obiectiv: Realizarea testelor de validare ale metodei

6. Prestigiul professional

6.1 Membri (incluzand statutul de recenzor) in colectivele de redactie ale unor reviste (cotate ISI sau incluse in baze de date internationale) sau in colective editoriale ale unor edituri internationale recunoscute.

NR. CRT.	NUME PRENUME	TITLUL REVISTEI/ EDITURII
1.	CSI Dr.Eugen Gheorghiu	Analytical Chemistry
		Lab on Chip
		Bioelectrochemistry
		Biosensors & Bioelectronics
		Analyst
		Journal of Non-Crystalline Solids
		Journal of Physics: D
		Physiological Measurement

6.2 Membri in colectivele de redactie ale revistelor recunoscute national (din categoria B in clasificarea CNCSIS)

NR. CRT.	NUME PRENUME	TITLUL REVISTEI/EDITURII
1.		

6.3 Premii internationale obtinute printr-un process de selectie

NR. CRT.	NUME PRENUME	PREMIUL	ANUL
1.	E. Gheorghiu, M. Gheorghiu, CM. Balut, D. Bratu	Medalie argint "Method to pinpoint the presence of some analytes in liquid solutions"; World Exhibition of Innovation, Research and Technology, EUREKA,Brussels 2004	2004

6.4 Premii nationale ale Academiei Romane

NR. CRT.	NUME PRENUME	PREMIUL	ANUL
1.	Eugen Gheorghiu	Premiul pentru Fizica"Stefan Procopiu" al Academiei Romane	1995

6.5 Conducatori de doctorat , membrii ai unitatii de cercetare

NR. CRT	Nume Prenume
1.	CSI Dr.Eugen Gheorghiu

6.6 Numar de doctori in stiinta, membrii ai unitatii de cercetare
Numar de doctori in stiinta: 7

1.CSI Dr.Eugen Gheorghiu
2.Dr.Mihaela Gheorghiu
3.Dr.Daniela Cucu
4.Dr.Szilveszter Gaspar
5.Dr.Corina Balut
6.Dr.Titus Sandu
7.Dr.Daniel Andreescu

7. Venituri realizate prin contracte de cercetare in domeniul pentru care se face evaluarea:

7.1: Numarul si valoarea contractelor de cercetare internationale finantate din fonduri publice:

Nr.crt	Contract					Total valoare	
		2004	2005	2006	2007	Lei	euro
1.	G6RD-CT-2000-00420	16154				16154	124040
2.	ROBIOS INCO-CT-2005-017464		1582126			1582126	455000
3.	RO-CHARPAN			41259	133800	175059	48645
Total		**16154**	**1582126**	**41259**	**133800**	**1773339**	**627685**

7.2 Numarul si valoarea contractelor de cercetare internationale finantate din fonduri private: 0

7.3 Numarul si valoarea contractelor de cercetare nationale finantate din fonduri publice:

Nr. Crt	Contract	2004	2005	2006	2007	Total valoare Lei
PNCDI						
1.	Biotech 01-7-CPD-095/2005	**48970**				**48970**
2.	Biotech 01-7-CPD-096/2006	**50190**				**50190**
3.	Biotech 034PED-3344/2003	**81420**	**90250**			**171670**
4.	Ceres 3-133/2003	**79030**	**92650**			**171680**
5.	Ceres 3-132/2003	**49050**	**89810**			**138860**
6.	Ceres 4-70/2004	**10000**	**37000**	**63000**		**110000**
7.	Ceres 4-211/2004	**14500**	**40000**	**80500**		**135000**
8.	Agral 373/2004	**10365**	**32310**	**92325**		**135000**
9.	Agral 337/2004	**5448**	**54842**	**79710**		**140000**
10.	Calist 5113/2004	**2805**	**31782**	**50413**		**85000**
11.	Matnantech 256/2004	**29100**	**40000**	**50900**		**120000**
12.	Invent 152/2004	**6400**	**39400**	**61600**		**107400**
13.	Invent 153/2004	**5000**	**50000**	**70000**		**125000**
Total PNCDI		**392278**	**598044**	**548448**	**0**	**1538770**
CEEX						
14.	Viasan 60/2005		**293000**	**136200**	**584300**	**1013500**
15.	Viasan 89/2006				**180000**	**180000**
16.	Biotech 74/2006				**60000**	**60000**
17.	Biotech 155/2006				**325000**	**325000**
18.	Agral 54/2006			**90000**	**290000**	**380000**
19.	UEFISCSU 1461/2006			**50000**	**70000**	**120000**
20.	UEFISCSU 1455/2006			**65000**	**75000**	**140000**
21.	UEFISCSU 1479/2006			**69000**	**69000**	**138000**
22.	UEFISCSU 5900/2006			**50000**	**80000**	**130000**
23.	Renar 286/2006			**550000**	**250000**	**800000**
24.	AMCSIT 199/2006			**170000**	**100000**	**270000**
Total CEEX		**0**	**293000**	**1180200**	**2083300**	**3556500**
25.	**Grant 111/2007**	**0**	**0**	**0**	**100000**	**100000**
Total Contracte Nationale		**392278**	**891044**	**1728648**	**2183300**	**5195270**

7.4 Numarul si valoarea contractelor de cercetare nationale finantate dinfonduri private:

7.5 Alte surse:

Comisia Europeana	**euro**	**704895**
Surse proprii	**lei**	**196702**

7.bis Venituri realizate din activitati economice: 0

8.Resursa umana de cercetare

8.1 Total personal de cercetare care realizeaza venituri din activitatea de cercetare/din care doctori in stiinta:

	2004	2005	2006	2007	Numar mediu
8.1.1 Cercetatori stiintifici gradul 1	2	2	2	2	2.00
din care : doctori in stiinta	2	2	2	2	2.00
8.1.2 Cercetatori stiintifici gradul 1I	2	2	2	1	1.75
din care : doctori in stiinta	2	2	2	1	1.75
8.1.3 Cercetatori stiintifici gradul 3			1	2	0.75
din care : doctori in stiinta			1	2	0.75
8.1.4 Cercetatori stiintifici	3	4	3	3	3.25
din care : doctori in stiinta		1			0.25
8.1.5 Asistenti de cercetare			3	4	1.75
8.1.6 Total personal auxiliar de cercetare angajat	3	2	3	3	2.75
Total personal de cercetare	10	10	14	15	12.25
din care: doctori in stiinte	4	5	5	5	4.75
Total personal de cercetare					12.25
din care : doctori de stiinte					4.75

8.2 Date privind perfectionarea resursei umane

8.2.1. Numar de doctoranzi si masteranzi care lucreaza in unitatea de cercetare la data completa 3

8.2.2 Numar teze de doctorat realizate in unitatea de cercetare-dezvoltare in perioada pentru care se face evaluarea:

2004	2005	2006	2007	TOTAL
1				1

9.Infrastructura de cercetare-dezvoltare

9.1 Laboratoare de cercetare – dezvoltare

Nr. Crt	Denumire laborator	Domeniul
1.	Laborator microscopie	Fizica aplicata (fizica suprafetelor)
2.	Laborator determinari SPR	Fizica aplicata (fizica suprafetelor)
3.	Laborator dezvoltare platforme senzoristice bioafine si celulare	Chimie analitica si biofizica
4.	Laborator electrochimie si spectroscopie de impedanta	Chimie fizica si inginerie electrica
5.	Laborator electrofiziologie	Electrofiziologie
6.	Laborator culturi celule	Biologie
7.	Laborator de modelare si analiza date	Fizica
8.	Laborator dezvoltare prototipuri(module de analiza electrochimica)	Electronica

Punctaj Autoevaluare

4. Criterii primare de performanta			
4.1 Lucrari stiintifice/tehnice publicate in reviste de specialitate cotate ISI			
	numar	**factor imp.**	**punctaj**
4.1.1. Numar de lucrari stiintifice	**23**	**30**	**690**
4.1.2. Punctaj cumulate ISI	**76.807**	**5**	**384.035**
4.1.3. Numar de citari in reviste de specialitate cotate ISI	**177**	**5**	**885**
Total punctaj cap 4.1			**1959.035**
4.2 Brevete de inventie			
4.2.1 Numar de brevete	**4**	**30**	**120**
4.2.2 Numar de citari de brevete in sistemul ISI		**5**	**0**
Total punctaj cap 4.2			**120**
4.3 Produse si tehnologii rezultate din activitati de cercetare , bazate pe brevete,omologari,sau inovatii proprii			
4.3.1 Numar de produse, tehnologii,studii, servicii		**20**	**0**
Total punctaj cap 4.3			**0**
Total punctaj capitol 4:			*2079.035*
5.Criterii secundare de performanta			
5.1 Lucrari stiintifice/tehnice publicate in reviste de specialitate fara cotatie ISI			
	numar	**factor imp**	**punctaj**
5.1.1 Numar de lucrari stiintifice	**2**	**5**	**10**
Total punctaj cap 5.1			**10**
5.2 Lucrari stiintifice prezentate la conferinte internationale cu comitet de program			
5.2.1 Numar de comunicari prezentate	**52**	**5**	**260**
Total punctaj cap 5.2			**260**
5.3 Modele fizice ,modele experimentale, modele functionale, prototipuri, normative, proceduri, metodologii, prototipuri, normative, proceduri, metodologii, reglementari si planuri tehnice noi sau perfectionate,realizate in cadrul programelor nationale.			
5.3.1. Numar de modele,normative, proceduri, etc.	**6**	**5**	**30**
Total punctaj cap.5.3			**30**
Total punctaj capitol 5:			*260*
6. Prestigiul profesional			
6.1 Membri in colectivele de redactie ale unor reviste (cotate ISI sau incluse in baze de date internationale)sau in collective editoriale ale unor edituri internationale recunoscute Nr.de prezente in perioada pentru care se face evaluarea	**4**	**20**	**80**

6.2 Membri in colectivele de redactie ale revistelor recunoscute national (cat.B) Nr de prezente:		**10**	**0**
6.3 Premii internationale obtinute printr-un proces de selectie Nr.de premii	**1**	**20**	**20**
6.4 Premii nationale ale Academiei Romane Nr.de premii	**1**	**20**	**20**
6.5 Conducatori de doctorat,membrii ai unitatii de cercetare Nr de conducatori de doctorat:	**1**	**10**	**10**
6.6 Numar de doctori in stiinta ,membrii ai unitatii de cercetare Nr de doctori in stiinta:	**7**	**10**	**70**
Total punctaj cap 6			*200*
Total punctaj capitolele 4+5+6			*2579.035*