



Nikolaos A. Chaniotakis, Ph.D.
Professor of Chemistry

UNIVERSITY OF CRETE
Department of Chemistry
Laboratory of Analytical Chemistry

Education

1980-1984 MS University of Minnesota

1984-1986 MS University of Michigan

1984-1989 Ph.D., University of Michigan: Department of Chemistry, Analytical Chemistry Section, Thesis title: Metalloporphyrins as Anion Selective Carriers in Membrane Electrodes

Post Graduate Training

1989 - 1990: Laboratorium für Organische Chemie, Eidgenössische Technische Hochschule (ETH) Zentrum. Zurich, Switzerland under the supervision of Prof. W. Simon.

Professional Track

Visiting Professor. (2012-2013). Daunert Laboratory, Department of Biochemistry and Molecular Biology, Miller School of Medicine, University of Miami, Miami, USA.

Responsible for the design and development of biosensors for a variety of biomolecules, drugs, and analytes using a variety of protein engineering strategies. Specifically, I utilize naturally occurring biological molecules that undergo a structural change in response to binding to a target ligand-analyte to develop highly selective and sensitive biorecognition elements that are incorporated into optical and electrochemical sensing platforms for in vivo applications.

Visiting Professor. (2011-2012) Planetary Chemical Analysis Group. Tufts University,

Medford MA, USA. Unraveling fundamental questions in planetary science using in-situ or on-site analytical systems designed to explore environments where no one has gone before. Developing micro and nano solid state sensors for use in the Wet Chemistry Lab for Future Rover Missions. Study the geochemistry and chemical composition of sea vents. Developing

the instrumentation that can withstand extreme temperature fluctuations (-140 to 60°C) and anticipate any unexpected chemical or physical conditions such an alien environment might present. In collaboration with Draper Laboratory, Cambridge MA, and Jet Propulsion Laboratory, California Institute of Technology.

Professor of Analytical Chemistry. (2003 - Present). University of Crete. The Laboratory is currently composed of Post Doctorate research associates, graduate Ph.D. Students, undergraduate students, one permanent researcher (M.S.). Teaching both undergraduate and graduate courses in Analytical Chemistry, Pharmaceutical Analysis, Biosensors, Instrumental Methods of Analysis. Currently. Writing text books in the area of Analytical Chemistry and Analytical Chemistry Laboratory, have translated "Fundamental of Analytical Chemistry" by Daniel C. Harris into Greek. Have obtained ISO certificate for Food Analyses for the Laboratory.

Associate professor: (1997-2002). Teaching Instrumental Analytical Chemistry one semester per year to third year undergraduate students. Responsible for the Laboratory of Instrumental Analytical Chemistry I. Teaching one graduate course per semester in the area of Analytical Chemistry, Electrochemistry and biosensors. Teaching part-time in two graduate programs of the Department of Chemistry, that of "Environmental Science and Engineering" and "Isolation and Synthesis of Natural Products". Teaching general chemistry for the department of material sciences.

Assistant Professor: (1991-1997) Research coordinator to graduate and undergraduate students. Teaching graduate courses centered on biosensors (2 semesters), Analytical Chemistry I (4 semesters) and II (3 semesters), and General Chemistry II (one semester). Responsible for the Analytical Chemistry laboratory I (5 semesters) and II (5 semesters) including, setting up the experiments and coordination.

Specialized Scientist. (1990-1991). The Greek Army. Worked with developing a database to be used as information bank for information exchange between the training base and the central army offices.

Post Doctorate Fellow, (1989 - 1990) Laboratorium fur Organische Chemie, ETH, Zurich, Switzerland (with Prof. Dr. W. Simon). Development of optical reversible oxygen sensor (oxygen optode). Design of novel ionophores and chromophores. Design and use of optical

sensors (optodes) for the determination of different ions. Design of novel pH carriers for potentiometric monitoring of pH in biological fluids (stomach pH catheters).

Research Assistant. (1986 - 1989) Department of Chemistry, The University of Michigan, Ann Arbor, MI. Thesis project was the development and application of metalloporphyrins as novel selective carriers for anion sensing. Thesis title: *Metalloporphyrins as Anion Carriers in Membrane Electrodes*. Research advisor, Prof. Dr. M. E. Meyerhoff.

Lecturer, (1985 - 1986) Medical School, The University of Michigan, Ann Arbor, MI. Responsible for 80 chemistry and biochemistry lectures in the AIMED program (a post baccalaureate pre-matriculation program designed to prepare medical school students for the medical school curriculum)

Lecturer Teaching Assistant, (1985 - 1986) Department of Chemistry, The University of Michigan, Ann Arbor, MI. Served as coordinator and presented all lecture material for chemistry 347 "Quantitative Analysis", a combined lecture and laboratory course.

Teaching Assistant, (1984 - 1985) Department of Chemistry, The University of Michigan, Ann Arbor, MI. Chemistry 225 "Organic Chemistry". Led the discussion section and coordinated laboratory sections.

Research Assistant, (1983 - 1984) Department of Chemistry, University of Minnesota, Minneapolis, MN. Project: Elucidation of synthetic pathways of ethylene production during fruit ripening in plants (research advisor, Prof. Dr. E. Leete).

Research Assistant, (1982 - 1983) Department of Chemistry, University of Minnesota, Minneapolis, MN. Project: The oxidation/reduction of different sulfur containing compounds utilizing electrochemical and colorimetric techniques (research advisor, Prof. Dr. Reynolds).

Teaching Assistant, (1983 - 1984) Department of Physics, University of Minnesota, Minneapolis, MN. Responsibilities: Grade the quizzes tests and finals of the 3rd year physics class (150 - 200 students).

Skills

1. Since the completion of my Post Doc Studies in Switzerland, I have started working at the University of Crete, where I established the Laboratory of Analytical Chemistry. I obtained permission by the Ministry of Education to provide service, and sell instruments directly. During these years I have mentored a number of undergraduate and graduate students coming from different backgrounds. In particular I have mentored 9 PhD students, of which one was a physicist. More than 15 Masters degrees, with backgrounds from physics, biology, biochemistry, material science. There were also a large number of undergraduate students trained in my lab. In addition, I have hosted post doctorate students, and researched from many European countries, as part of international collaborations, of Marie Curie programs.
2. I have a deep knowledge in most analytical systems, procedures, and instruments, including all electrochemical techniques, all separation techniques, ICP-MS, HPLC-MS, AFM/SPM, FT-IR, Micro RAMAN, Screen Printing, SEM, TEM, XPS, and micro fabrication techniques.
3. I have started 2 spin off companies: Electrochemical Analytical Systems (ELAS), and KOTINOS. Within ELAS I have developed and manufactured in house a complete series of electrochemical sensors which were the basis for a USA company (AST inc.). The sensors are still being manufactured, and sold world-wide. A range of accessories, solutions, calibration kits, membranes etc, were also developed within this activity, and are still available. KOTINOS is a olive oil business involving USA partners. This activity is on-hold at the moment.
4. I have cooperated with ORION Research for the development of the magnesium sensor, as well as the formulation of buffers, and interfering suppression solutions, products that are now in the market.
5. I have coordinated from start to finish the accreditation of my Laboratory according to ISO 17025:2005 (ESYD) for 3 parameters (organochlorine pesticides, nitrates, and water content). Accreditation number 404. This was the first such certification issued to a University Analytical Laboratory in Greece.
6. I have excellent working knowledge of Statistical Process Control packages such as SPSS, ORIGIN, and Excel.
7. During the past 3 years I have been involved with the development of Chemistry teaching material (Natural Approach to Chemistry) with ERGOPEDIA inc. based in Cambridge, including the text book, and especially the Laboratory Manual (setting up the experiments, validating their performance, and presenting them in a final form).

8. I am reviewer in all major journals related to Analytical Chemistry, as well in material science, nanotechnology, etc. Reviewer in EU, some US and National Funding Agencies.

Recent Peer Reviewed Publications

RG Score 37.74, h-index 30, 3300 Citations, 100 publications

1. Kalomiraki M, Thermos K, Chaniotakis NA. Dendrimers as tunable vectors of drug delivery systems and biomedical and ocular applications. *International Journal of Nanomedicine (I.F. 4.4)*. 2016;11:1-12.
2. Free-standing gallium nitride membrane-based sensor for the impedimetric detection of alcohols Alifragis, Y. and Roussos, G. and Pantazis, A. K. and Konstantinidis, G. and Chaniotakis, N., *Journal of Applied Physics (I.F. 2.2)*., 119, 074502 (2016)
3. G. Stavrinidis, K. Michelakis, V. Kontomitrou, G. Giannakakis, M. Sevrisianos, G. Sevrisianos, N. Chaniotakis, Y. Alifragis, G. Konstantinidis, SU-8 microneedles based dry electrodes for Electroencephalogram, *Microelectronic Engineering (I.F. 1.3)*., Volume 159, 15 June 2016, Pages 114-120,
4. Kallia Katsampoxaki-Hodgetts, Maria Fouskaki, Katy Siakavara, Roumpini Moschochoritou, Nikos Chaniotakis. Student and Teacher Perceptions of Inquiry Based Science Education in Secondary Education in Greece. *American Journal of Educational Research* Vol. 3, No. 8, 2015, pp 968-976 (I.F. 2.2). Cited by 1
5. Glen D. O'Neil, Maria Fouskaki, Samuel P. Kounaves, Nikos A. Chaniotakis, The use of graphene oxide as a fixed charge carrier in ion-selective electrodes, *Electrochemistry Communications* Volume 55, June 2015, Pages 51-54, (I.F. 4.9)., Cited by 1
6. Chaniotakis, N., Buiculescu, R. Semiconductor quantum dots in chemical sensors and biosensors (2014) *Nanosensors for Chemical and Biological Applications: Sensing with Nanotubes, Nanowires and Nanoparticles*, pp. 267-294. (Cited by 2)
7. Kounaves, S.P., Chaniotakis, N.A., Chevrier, V.F., Carrier, B.L., Folds, K.E., Hansen, V.M., McElhoney, K.M., O'Neil, G.D., Weber, A.W. Identification of the perchlorate parent salts at the Phoenix Mars landing site and possible implications (2014) *Icarus*., 232, pp. 226-231. (I.F. 3.2) (Cited by 20)
8. O'Neil, G.D., Weber, A.W., Buiculescu, R., Chaniotakis, N.A., Kounaves, S.P. Electrochemistry of aqueous colloidal graphene oxide on Pt electrodes (2014) *Langmuir*, 30 (31), pp. 9599-9606. (I.F. 4.5) (Cited by 5)
9. O'Neil, G.D., Fouskaki, M., Kounaves, S.P., Chaniotakis, N.A. The use of graphene oxide as a fixed charge carrier in ion-selective electrodes (2015) *Electrochemistry Communications* 55, art. no. 5414, pp. 51-54. (I.F. 4.9) (Cited by 1)

10. High Yields of Hydrogen Production Induced by Meta-Substituted Dichlorophenols Biodegradation from the Green Alga *Scenedesmus obliquus* Author(s): Papazi, Aikaterini; Andronis, Efthimios; Ioannidis, Nikolaos E.; Chaniotakis, Nikolaos) Kotzabasis, Kiriakos][1] PLOS ONE (*I.F.* 3.3). Volume: 7 Issue: 11 2012
11. Stability and Lifetime of Potassium Solid-Contact Ion Selective Electrodes for Continuous and Autonomous Measurements, McElhoney, Kyle; O'Neil, Glen D.; Chaniotakis, Nikos A.; et al. ELECTROANALYSIS Volume: 24, Issue: 11 Pages: 2071-2078 2012, (*I.F.* 2.5), (Cited by 7)
12. The stabilization of Au NP-AChE nanocomposites by biosilica encapsulation for the development of a thiocholine biosensor. Buiculescu Raluca; Chaniotakis Nikos A Bioelectrochemistry Volume: 86, 72-7 2012 (*I.F.* 3.9) (Cited by 10)
13. Carbon-Nanofiber-Based Nanocomposite Membrane as a Highly Stable Solid-State Junction for Reference Electrodes. O'Neil, G. D., Buiculescu, R., Kounaves, S. P., and Chaniotakis N., *Anal. Chem.* 83 (2011), 5749–5753.
14. Biosilicated CdSe/ZnS quantum dots as photoluminescent transducers for acetylcholinesterase-based biosensors. Buiculescu, R., Hatzimarinaki, M., Chaniotakis, N.A., *Anal. Bioanal. Chem.* 398 (2010), 3015-3021.
15. Novel microbiosensors prepared utilizing biomimetic silicification method. Tian, F., Wu, W., Broderick, M., Vamvakaki, V., Chaniotakis, N., Dale, N., *Biosens. Bioelectron.* 25 (2010), 2408-2413.
16. GaN and InN nanocolumns as electrochemical sensing elements: Potentiometric response to KCl, pH and urea. Sofikiti, N., Chaniotakis, N., Grandal, J., Utrera, M., Sánchez-García, M.A., Calleja, E., *Mater. Lett.* 64 (2010), 1332-1335.
17. SMARTDIAB: A Communication and Information Technology Approach for the Intelligent Monitoring, Management and Follow-up of Type 1 Diabetes Patients: Mougiakakou Stavroula G.; Bartsocas Christos S.; Bozas Evangelos; Chaniotakis N. et al. *IEEE TRANSACTIONS ON INFORMATION TECHNOLOGY IN BIOMEDICINE* Volume: 14 Issue: 3 Pages: 622-633, 2010
18. Porphyrin decorated CdSe quantum dots for direct fluorescent sensing of metal ions. Frasco, M.F., Vamvakaki, V., Chaniotakis, N., *J. Nanopart. Res.* 12 (2010), 1449-1458.

19. Bioconjugated quantum dots as fluorescent probes for bioanalytical applications, Review. Manuela F. Frasco and Nikos Chaniotakis, *Anal. Bioanal. Chem.* 396 (2010), 229-240.
20. Immobilization of glucose oxidase and 2-hydroxybiphenyl 3-monooxygenase in mesoporous silica: Characterization studies and construction of an amperometric glucose biosensor. Stefanakis, D., Margellou, A., Psarouli, A., Chaniotakis, N., Ghanotakis, D.F., *Anal. Lett.* 43 (2010), 2582-2597.
21. Semiconductor Quantum Dots in Chemical Sensors and Biosensors, Review. Manuela F. Frasco and Nikos Chaniotakis, *Sensors* 9 (2009), 7266- 7286.
22. Spectro-electrochemical studies of acetylcholinesterase in carbon nanofiber-bioinspired silica nanocomposites for biosensor development. Hatzimarinaki, M., Vamvakaki, V., Chaniotakis, N. *J. Mater. Chem.* 19 (2009), 428-433.
23. Comparison of protein immobilisation methods onto oxidised and native carbon nanofibres for optimum biosensor development. Stavyiannoudaki, V., Vamvakaki, V., Chaniotakis, N. *Anal. Bioanal. Chem.* 395 (2009), 429-435.
24. Influence of crystal polarity and metal electronegativity on the sensing properties of III-nitrides. N. Sofikiti, G. Tsiakatouras, E. Iliopoulos, A. Georgakilas and N. Chaniotakis, *Journal of Materials Science and Engineering* 3 (2009), 28-39.
25. Direct immobilization of enzymes in GaN and InN nanocolumns: The urease case study. N. Sofikiti, N. Chaniotakis, J. Grandal, M. Utrera, M. A. Sanchez-Garcia, E. Calleja, E. Iliopoulos, and A. Georgakilas, *Appl. Phys. Lett.* (2009) 95, 113701.
26. Biomimetically Synthesized Silica–Carbon Nanofiber Architectures for the Development of Highly Stable Electrochemical Biosensor Systems. Vamvakaki, V.; Hatzimarinaki, M.; Chaniotakis, N. *Anal. Chem.* 80 (2008), 5970-5975.
27. DNA Stabilization and Hybridization Detection on Porous Silicon Surface by EIS and Total Reflection FT-IR Spectroscopy. Vicky Vamvakaki, Nikos A. Chaniotakis. *Electroanalysis* 20 (2008), 1845-1850.
28. Fullerene-based electrochemical buffer layer for ion-selective electrodes. Maria Fouskaki, Nikos Chaniotakis. *The Analyst* 133 (2008), 1072 - 1075.
29. Novel semiconductor materials for the development of chemical sensors and biosensors: A review. Chaniotakis, N., Sofikiti, N. *Anal. Chim. Acta* 615 (2008), 1-9.

30. Electrochemical Biosensing Systems Based on Carbon Nanotubes and Carbon Nanofibers. Vicky Vamvakaki, Maria Fouskaki, Nikos Chaniotakis. *Anal. Cal Lett.* 40 (2007), 2271 – 2287.
31. Carbon nanostructures as transducers in biosensors. V. Vamvakaki, N. Chaniotakis. *Sens. Actuators B* 126 (2007), 193–197.
32. Pesticide detection with a liposome-based nano-biosensor. V. Vamvakaki, N. Chaniotakis. *Biosens. Bioelectron.* 22 (2007), 2848–2853.
33. Immobilization of enzymes into nanocavities for the improvement of biosensor stability. V. Vamvakaki, N. Chaniotakis. *Biosens. Bioelectron.* 22 (2007), 2650–2655.
34. Potassium selective chemically modified field effect transistors based on AlGa_N/Ga_N two-dimensional electron gas heterostructures. Y. Alifragis, A. Volosirakis, N.A. Chaniotakis, G. Konstantinidis, A. Adikimenakis, A. Georgakilas. *Biosens. Bioelectron.* 22 (2007), 2796–2801.
35. AlGa_N/Ga_N high electron mobility transistor sensor sensitive to ammonium ions. Y. Alifragis, A. Volosirakis, N. A. Chaniotakis, G. Konstantinidis, E. Iliopoulos and A. Georgakilas. *Phys. Stat. Sol.* 204 (2007), 2059 - 2063.
36. Electrochemical Biosensing systems based on carbon nanotubes and carbon nanofibers: Vamvakaki Vicky; Fouskaki Maria; Chaniotakis Nikos: *ANALYTICAL LETTERS*: 40: 12: 2271-2287: 2007
37. Carbon Nanofiber-based Glucose Biosensors. V. Vamvakaki, K. Tsagaraki, N. Chaniotakis. *Anal. Chem.*, 78 (2006), 5538-5542.
38. Oxidative stability and radical scavenging activity of extra virgin olive oils: An electron paramagnetic resonance spectroscopy study. V. Papadimitriou, T.G. Sotiroudis, A. Xenakis, N. Sofikiti, V. Stavviannoudaki, N.A. Chaniotakis, *Anal. Chim. Acta* 573-574 (2006), 453-458.
39. The Fourth International Conference on Instrumental Methods of Analysis - Modern trends and applications, Iraklion, Crete, Greece, 2-6 October, 2005 : Chaniotakis Nikos : *ANALYTICA CHIMICA ACTA* Volume: 573 Special Issue: SI Pages: 1-2 DOI: 10.1016/j.aca.2006.05.017 Published: JUL 28 2006

40. Thick Membrane Solid Contact ISE for the Detection of Lead at Picomolar Levels. M. Fouskaki and N. A. Chaniotakis, *Anal. Chem.* 77 (2005), 1780-1784.
41. Anion Selective Potentiometric Sensor Based on Gallium Nitride Crystalline Membrane. Yiannis Alifragis, Giorgos Konstantinidis, Alexander Georgakilas, Nikos Chaniotakis, *Electroanalysis* 17 (2005), 527-531.
42. Stabilization of Enzymes in Nanoporous Materials for Biosensor Applications, S. Sotiropoulou, V. Vamvakaki, N.A. Chaniotakis, *Biosens. Bioelectron.* 20 (2005), 1674-1679.
43. Lowering the detection limit of the Acetylcholinesterase biosensor using a nanoporous carbon matrix, S. Sotiropoulou, N.A. Chaniotakis, *Anal. Chim. Acta* 530 (2005), 199-204.
44. Genetically engineered acetylcholinesterase-based biosensor for attomolar detection of dichlorvos, S. Sotiropoulou, D. Fournier, N.A. Chaniotakis, *Biosens. Bioelectron.* 20 (2005), 2347-2352.
45. Fluorescence detection of enzymatic activity within a liposome based nano-biosensor. Vicky Vamvakaki, Didier Fournier, Nikos A. Chaniotakis, *Biosens. Bioelectron.* 2(1) (2005), 384-388.
46. GaN-based Anion Selective Sensor. Probing the Origin of the Induced Electrochemical Potential. Nikos A. Chaniotakis, Yiannis Alifragis, Giorgos Konstantinidis, Alexander Georgakilas, *Appl. Phys. Lett.* 86 (2005), 164103.
47. Tuning of sol-gel microenvironments for Acetylcholinesterase encapsulation. S. Sotiropoulou, N. A. Chaniotakis, *Biomaterials* 26 (2005), 6771-6779.
48. Response to anions of AlGa_N/Ga_N high electron mobility transistors. Y. Alifragis, A. Georgakilas, G. Konstantinidis, E. Iliopoulos, A. Kostopoulos, N.A. Chaniotakis, *Appl. Phys. Lett.* 87 (2005), 253507.
49. Designing an arsenate-selective sensor based on the bis(dichloroorganostannyl)methane derivative [Cl₂(4-n-C₈H₁₇-C₆H₄)Sn]₂CH₂. Nikos A. Chaniotakis, Klaus Jurkschat, Gregor Reeske, Antonis Volosirakis. *Anal. Chim. Acta* 553 (2005), 185-189.
50. Stabilization of enzymes in nanoporous materials for biosensor applications: Sotiropoulou S; Vamvakaki V; Chaniotakis NA Conference: 8th World Congress on Biosensors Location: Granada, SPAIN Date: MAY 24-26, 2004 Source: *BIOSENSORS & BIOELECTRONICS* : 20, 8, 1674-1679 2005

51. Lowering the detection limit of the acetylcholinesterase biosensor using a nanoporous carbon matrix, Sotiropoulou S; Chaniotakis NA ANALYTICA CHIMICA ACTA: 530, 2, 199-204 2005
52. Gallium Nitride-Based Potentiometric Anion Sensor. Nikolas A. Chaniotakis, John Alifragis, Giorgos Konstantinidis, Alexandros Georgakilas, Anal. Chem. 76(18) (2004), 5552-5556.
53. Bis[di-n-alkyl(fluoro)stannyl]methanes, (R₂F_{Sn})(₂)CH₂ (R = n-octyl, n-dodecyl): Stable fluoride-selective carriers, Chaniotakis N; Jurkschat K; Muller D; et al.: EUROPEAN JOURNAL OF INORGANIC CHEMISTRY, 11 2283-2288, 2004
54. Enzyme stabilization strategies based on electrolytes and polyelectrolytes for biosensor applications, Chaniotakis NA, ANALYTICAL AND BIOANALYTICAL CHEMISTRY, 378, 1, 89-95, 2004
55. Carbon Nanotube Array-based Biosensor. S. Sotiropoulou, N. A. Chaniotakis, Anal. Bioanal. Chem. 375 (2003), 103-105.
56. Ion-partitioning bulk membrane CHEMFET as highly sensitive calcium probe, Moschou EA; Chaniotakis NA:: ELECTROANALYSIS Volume: 15, 15-16, 1276-1280, 2003
57. Method for the determination of water content in sultana raisins using a water activity probe, Fouskaki M; Karametsi K; Chaniotakis NA: FOOD CHEMISTRY, 82, 1, 133-137, 2003
58. Novel carbon materials in biosensor systems, Sotiropoulou S; Gavalas V; Vamvakaki V; et al. BIOSENSORS & BIOELECTRONICS, 18 , 2-3, 211-215, 2003
59. Morpholinoethanesulfonic acid-based buffer system for improved detection limit and stability of the fluoride ion selective electrode, Fouskaki M; Sotiropoulou S; Koci M; et al. ANALYTICA CHIMICA ACTA, 478, 1, 77-84, 2003
60. Direct potentiometric measurement of nitrate in seeds and produce, Geniatakis E; Fouskaki M; Chaniotakis NA, COMMUNICATIONS IN SOIL SCIENCE AND PLANT ANALYSIS, 34, 3-4, 571-579, 2003
61. Just taste additive? Bronze age salt from Zakros, Crete, Kopaka, K., Chaniotakis, N. Oxford Journal of Archaeology, Volume 22, Issue 1, Pages 53-66, February 2003
62. Picolinamide residue-based hydrogen-selective ISEs for the potentiometric measurement of subzero pH values, Fouskaki M; Gimisis T; Chaniotakis NA, ELECTROANALYSIS, 14, 9, 593-598 2002

63. Polyelectrolyte-stabilized biosensors based on macroporous carbon electrode. Vaggelis T. Dimakis, Vasilis G. Gavalas and Nikolas A. Chaniotakis, *Anal. Chim. Acta* 467(1-2) (2002), 217-223
64. Synthesis and characterization of polymeric derivatives containing grafted triorganotin cinnamates with electrochemical chloride response, Angiolini L; Salatelli E; Caretti D; et al. *MACROMOLECULAR CHEMISTRY AND PHYSICS*, 203, 1, 219-229, 2002
65. Soluble polystyrenes functionalized by triorgano[(1-oxoalkyl)oxy]stannanes (= triorganotin carboxylates): Synthesis, structure, and anion-recognition characteristics, Dalil H; Biesemans M; Willem R; et al. *HELVETICA CHIMICA ACTA*, 85, 3, 852-866, 2002
66. Selective fluoride recognition and potentiometric properties of ion-selective electrodes based on bis(halodiphenylstannyl)alkanes. Katerina Perdikaki, Ioannis Tsagkatakis, Nikolas A. Chaniotakis, Reiner Altmann, Klaus Jurkschat and Gregor Reeske *Anal. Chim. Acta*, 467 (1-2) (2002), 197-204.
67. A new Chloride-Selective Carrier and its Evaluation in Ion-Selective Electrodes. K Perdikaki, J. K Tsagatakis, N. A. Chaniotakis, *Microchimica Acta*, 136 (2001), 217-221.
68. CHEMFETs Based Microsensors Covered with Ion-Partitioning Polymeric Membranes. E. A. Moschou, N. A. Chaniotakis. *Microchimica Acta*, 136 (2001), 205-209.
69. Potassium Selective CHEMFET Based on an Ion-Partitioning Membrane. E. A. Moshou, N. A. Chaniotakis. *Anal. Chim. Acta*, 445 (2001), 183-190.
70. Theoretical and experimental studies of metallated phenanthroline derivatives as carriers for the optimization of the nitrate sensor, Andredakis GE; Moschou EA; Matthaiou K; et al. *ANALYTICA CHIMICA ACTA*, 439, 2, 273-280, 2001
71. Phosphate biosensor based on polyelectrolyte-stabilized pyruvate oxidase, Gavalas VG; Chaniotakis NA, *ANALYTICA CHIMICA ACTA*, 427, 2, 271-277, 2001
72. Phosphate-binding characteristics and selectivity studies of bifunctional organotin carriers, Tsagkatakis I; Chaniotakis N; Altmann R; et al. Source: *HELVETICA CHIMICA ACTA* Volume: 84 Issue: 7 Pages: 1952-1961, 2001
73. Ion-Partitioning Membrane-Based Electrochemical Sensors. E. A. Moshou, N. A. Chaniotakis. *Anal. Chemi*, 72 (2000), 1835.

74. [60]Fullerene-Mediated Amperometric Biosensors. Vasilis G. Gavalas, Nikolas A. Chaniotakis. *Analytica Chimica Acta*, 404 (2000), 67-73.
75. Polyelectrolyte Stabilized Oxidase based Biosensors: Effect of Diethylaminoethyl-dextran on the Stabilization of Glucose and Lactate Oxidases into Porous Conductive Carbon. V.G. Gavalas, N.A. Chaniotakis, *Analytica Chimica Acta* 404/1 (2000) 67-73.
76. Ion-Partitioning Membrane-Based Electrochemical Sensors. E.A. Moshou, N.A. Chaniotakis, *Analytical Chemistry* 72(8) (2000) 1835-1842.
77. Direct Electrochemical Flow Analysis System for Simultaneous Monitoring of Total Ammonia and Nitrite in Seawater. E.A. Moschou, U. Azpiroz Lasarte, M. Fouskaki, N.A. Chaniotakis, N. Papandroulakis, P. Divanach. *Aquaculture engineering* 22 (2000) 255-268.
78. Novel pre-oxidizing cell for elimination of electroactive interferents during biosensor analysis. Application to glucose determination in real samples. V.G. Gavalas, M.G. Fouskaki, N.A. Chaniotakis, *Analytical Letters* 33 (2000) 2391-2405.
79. [60]Fullerene-Mediated Amperometric Biosensors. V.G. Gavalas, N.A. Chaniotakis, *Analytica Chimica Acta* 404 (2000) 67-73.
80. Tributyl- and Triphenyltin Benzoates, Phenylacetates, and Cinnamates as Anion Carriers: an Electrochemical Assessment Coupled to Structural NMR Studies and AM1 Calculations. J. Tsagatakis, N.A. Chaniotakis, K. Jurkschat, S. Damoun, P. Geerlings, A. Bouhdid, M. Gielen, I. Verbruggen, M. Biesemans, J.C. Martins, R. Willem, *Helvetica Chimica Acta* 82 (1999) 531-542.
81. Polyelectrolyte Stabilized Biosensors. V.G. Gavalas, N.A. Chaniotakis, *Instrumental Methods of Analysis. Modern Trends and Applications. IMA' 99 International Conference Proceedings. (1999), Volume I, p.280-284.*
82. Organotin Anion Carriers and their Applications in Ion-Selective Electrodes. K. Perdikaki, J.K Tsagatakis, N.A. Chaniotakis, *Modern Trends and Applications. IMA' 99 International Conference Proceedings (1999), Volume I, p.91-95.*
83. Microsensors Based on CHEMFETs Covered with Ion-Partitioning Membranes. E.A. Moschou, N.A. Chaniotakis, *Modern Trends and Applications. IMA' 99 International Conference Proceedings. (1999), Volume I, p.285-289.*
84. Post Column Derivatization System for High Performance Liquid Chromatography, Characteristics and Applications in Carbohydrates. M.G. Fouskaki, N.A. Chaniotakis, P.G. Rigas, *Modern Trends and Applications. IMA' 99 International Conference Proceedings. (1999), Volume II, p.604-608.*
85. Automated Portable Ammonia Monitor for Sea Water. E.A. Moschou, N.A. Chaniotakis, *American Laboratory*, 10, #7, (1998), p.10.
86. Highly Selective Two-Ion-Carrier Chemically Modified FET's. N.A. Chaniotakis, E. Moschou, G. Kostantinidis. *MicroElectronic Engineering*, 41-42 (1998) 481-484.
87. Improved operational stability of biosensors based on enzyme-polyelectrolyte complex adsorbed into a porous carbon electrode. V.G. Gavalas, N.A. Chaniotakis, T.D. Gibson, *Biosensors and Bioelectronics* 13 (1998) 1205-1211.
88. Organometallic complexing agents as carriers in polymer-based electrodes N.A. Chaniotakis, J.K. Tsagatakis, K. Jurkschat, R. Willem, *Reactive & Functional Polymers* 34 (1997) 183-188.

89. Anion Partitioning Into Highly Lipophilic Organic Phases. G. Andredakis, J. Tsagatakis, N.A. Chaniotakis, *Electroanalysis* 9 (1997) 869-872.
90. Chemical Sensors for Anions Based on Sn(IV) Lewis Acidic Carriers. J.K. Tsagatakis, N.A. Chaniotakis, J. Jurckschat, *Quimica Analytica* 16 (1997) [Suppl. 1]:S105-S109.
91. Magnesium Ion-Selective Electrode. Optimization and FIA Applications. N.A. Chaniotakis, J.K. Tsagatakis, E. Moshou, S.J. West, X. Wen, *Analytica Chimica Acta* 356 (1997) 105-111.
92. Solid-Contact Ion-Selective Electrodes with Stable Internal Electrode. M. Vamvakaki. N.A. Chaniotakis, *Analytica Chimica Acta* 320 (1996) 53-61.
93. From Molecular Recognition to Analytical Information by Chemical Sensors. U. Spichiger, X. Aiping, D. Citterio, H. Buhler, N.A. Chaniotakis, W. Simon, *Electroanalysis* 7(9) (1995) 859-863.
94. Multiorganyltin Compounds. Designing a Novel Phosphate-Selective Carrier. J.K. Tsagatakis, N.A. Chaniotakis, K. Jurckshat, *Helvetica Chimica Acta* 77 (1994) 2191-2196.
95. Potentiometric Phosphate Selective Electrode Based on Organometallic Multi-Tin(IV) Carrier. N.A. Chaniotakis, K. Jurckschat, A. Ruthemann, *Analytica Chimica Acta* 282 (1993) 345-352.
96. Ion and Gas Selective Electrodes -Research and Applications. N.A. Chaniotakis, *Sensors* 28 May (1993) Proceedings Special issue.
97. Life Time of Neutral Carrier-Based Liquid-Membranes in Aqueous Samples and B. O. Dinten, U. Spichiger, N.A. Chaniotakis, P. Gehrig, B. Rusterholz, W.E. Morf, W. Simon, *Analytical Chemistry* 63 (1991) 596-603.
98. Response properties of Ion-Selective Polymeric Electrodes Prepared with Aminated and Carboxylated Poly(Vinyl Chloride). S-C. Ma, N.A. Chaniotakis, M.E. Meyerhoff, *Analytical Chemistry* 60 (1989) 2293-2299.
99. Salicylate-Selective Membrane Electrode Based on Tin(IV)-Tetraphenylporphyrin. N.A. Chaniotakis, S.B. Park, M.E. Meyerhoff, *Analytical Chemistry* 61 (1989) 566-570.
100. Mn(III)-Porphyrin-Based Thiocyanate-Selective Membrane Electrode: Characterization and Application in Flow Injection Determination of Thiocyanate in Saliva. D.V. Brown, N.A. Chaniotakis, I.H. Lee, S.C. Ma, S.B. Park, M.E. Meyerhoff, R.J. Nick, J.T. Groves. *Electroanalysis*, 1 (1989) 477-484.
101. New Anion- and Gas-Selective Potentiometric Sensors. *Chemical Sensors and Microinstrumentation* Editors: Murray et al. Me. E. Meyerhoff; D.M. Pranita, H.S. Yim, N.A. Chaniotakis, S.B. Park. ACS Symposium Series No. 403 Chapter 2, (1989) pp. 26-45. invited chapter in BOOK.
102. Anion Selective Optical Sensors Based on a Coextraction of Anion-Proton Pairs into a Solvent-Polymeric Membrane. S.S.S. Tan, P.C. Hauser, N.A. Chaniotakis, G. Suter, W. Simon, *Chimia* 43 (1989) 257-261.
103. Influence of Porphyrin Structure on Anion Selectivities of Mn(III) Porphyrin-Based Membrane Electrodes. N.A. Chaniotakis, A.M. Chasser; M.E. Meyerhoff, J.T. Groves, *Analytical Chemistry* 60 (1988) 185-188.

104. Recent Advances in the Design of Anion and Gas Selective Potentiometric Membrane Electrodes. M.E. Meyerhoff, D.M. Prinitis, N.A. Chaniotakis, Instrument Society of American Transactions, 87-1084 (1987) 467-477.

Recent Invited Lectures

1. Nanomaterials and quantum structures in the design of chemical sensors and biosensors. TUFTS University, March 27th, 2012
2. Nanomaterial-Based Sensors for Direct Analysis in Remote and Martian Environments: Possibilities and Challenges. University of Miami, Department of Chemistry, March 16th, 2012.
3. Probing Life on Mars Using Robotic Analytical Chemistry: Can Asparagus Grow on Mars? University of Crete, Department of Chemistry, April 20th 2012
4. O'Neil, G.D.; Chaniotakis, N.A.; Lee, M.C.; Aubrey, A.D.; McElhoney, K.M.; Kounaves, S.P. "Carbon Nanomaterial-based Electrochemical Sensors in Microfluidic Total Analysis Systems." EuCheMS 4th Annual Congress, Prague, Czech Republic. August 24-31, 2012.
5. O'Neil, G.D.; Lee, M.C.; Aubrey, A.D.; Chaniotakis, N.A.; Kounaves, S.P. "Carbon Nanomaterial-based Electrochemical Sensors in Microfluidic Total Analysis Systems for Extraterrestrial Analysis". PITTCON, Philadelphia, PA, United States, March 17-21, 2013.
6. McElhoney, K.M.; Chaniotakis, N.; O'Neil, G.D.; Bauer, J.; Harjes, D.; Traviglia, D.; Hecht, M.H.; Kounaves, S.P. "The In-Situ Wet Chemical Analysis Laboratory and Sensor Array (CHEMSENS): The Next Generation Mars Soil Chemistry Analyzer." 43rd Lunar and Planetary Science Conference, Houston, TX, March 2012.
7. "Carbon Nanomaterial-based Electrochemical Sensors in Microfluidic Total Analysis Systems." O'Neil, G.D.; Chaniotakis, N.A.; Lee, M.C.; Aubrey, A.D.; McElhoney, K.M.; Kounaves, S.P. EuCheMS 4th Annual Congress, Prague, Czech Republic. August 24-31, 2012.
8. "Synthesis and applications of optically active carbon nanodots", Nikos A. Chaniotakis, Maria Fouskaki, Raluca Buiculescu, 5th International Conference on Micro - Nanoelectronics, Nanotechnologies and MEMS, Micro&Nano 2012, 7-10 October 2012

9. "Semiconductor quantum dots as highly effective biosensing tools", Raluca Buiculescu, Maria Fouskaki, Nikos Chaniotakis, International Semiconductor Conference – CAS, an IEEE event, 14-17 October 2012
10. O'Neil, G.D.; Kounaves, S.P.; Chaniotakis, N. "Solid State Reference Electrode Based on a Nanocomposite Polymer for Electrochemical Analysis of Extraterrestrial and Extreme Environments." PITTCO, Atlanta, GA, United States, March 13-18, 2011.
11. O'Neil, G.D.; Kounaves, S.P.; Chaniotakis, N. "Using Carbon Nanomaterials as Novel Solid-State Junctions for Reference Electrodes." Nanotech 2011, Boston, MA, United States, June 13-16, 2011
12. McElhoney, K.M.; Chaniotakis, N.; O'Neil, G.D.; Kounaves, S. "Novel Electroanalytical Instrument for Soil Samples: CHEMSENS." 242nd ACS National Meeting & Exposition, Denver, CO, August 2011.
13. Novel Microbiosensors Prepared Utilizing Biomimetic Silicification Method. TUFTS University, Department of Chemistry, February 18th, 2011
14. Using Carbon Nanomaterials as Novel Solid-State Junctions for Reference Electrodes. O'Neil, G.D.; Kounaves, S.P.; Chaniotakis, N. Nanotech 2011, Boston, MA, United State, June 13-16, 2011.
15. Covalent Binding vs. Adsorption of Biomolecules on Silicon Nitride Planar Waveguides: Psarouli A.; Bourkoula A.; Petrou P.; Chaniotakis A. et al. Editor(s): Kaltsas G; Tsamis C Conference: 25th Eurosenors Conference Location: Athens, GREECE Date: 2011: EUROSENSORS XXV, Book Series: Procedia Engineering Volume: 25, 2011
16. Novel electroanalytical instrument for soil samples: CHEMSENS, McElhoney Kyle; Chaniotakis Nikos; O'Neil Glen D.; et al.: 242nd National Meeting of the American-Chemical-Society (ACS): Denver, CO: 2011 ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY Volume: 242 : 38-CASW 2011
17. The *In-Situ* Wet Chemical Analysis Laboratory and Sensor Array (CHEMSENS): The Next Generation Mars Soil Chemistry Analyzer. McElhoney, K., Chaniotakis, N., O'Neil, G. D., Bauer, J., Harjes, D., Traviglia, D., Hecht, M. H., Kounaves, S. P. (2012) 43rd Lunar and Planetary Science Conference, Houston, TX, United States, March 19-23, 2012, #2329

18. Solid State Reference Electrode Based on a Nanocomposite Polymer for Electrochemical Analysis of Extraterrestrial and Extreme Environments. O'Neil, G.D.; Kounaves, S.P.; Chaniotakis, N. PITTCON, Atlanta, GA, United States, March 13-18, 2011.
19. Inorganic-organic semiconductor heterostructures in biosensing and bioelectronics. N. Chaniotakis HETECH 2010, Iraklion Crete, October 17th, 2010
20. Detecting and controlling single ions-molecules and electrons via highly selective and sensitive bio-organic and inorganic composite devices” Organic Bioelectronics Sardagna, Trento (Italy), 14-16 June 2010
21. Ab-INITIO Development of a nitrate sensor and its application in method validation for nitrate measurement in leafy vegetables. Metrology February 2010, Nicosia Cyprus
22. Nanostructures and Quantum Dots in Biosensing. International Conference on Semiconductors Sinai Romania 2009.
23. CdSe QUANTUM DOTS - CALIX[4]CROWN-5 NANOASSEMBLY FOR ION SENSING: Frasco M. F.; Chaniotakis N. A. Book Group Author(s): IEEE: 32nd International Semiconductor Conference Location: Sinaia, ROMANIA 2009: CAS: 2009 INTERNATIONAL SEMICONDUCTOR CONFERENCE, VOLS 1 AND 2, PROCEEDINGS Book Series: International Semiconductor Conference : 77-80 : 2009
24. THE OPTIMIZATION OF OLIGONUCLEOTIDE CONJUGATION ONTO GOLD NANOPARTICLES FOR BIODETECTION, Buiculescu R.; Comor M.; Chaniotakis N. A. : IEEE: 32nd International Semiconductor Conference Location: Sinaia, ROMANIA: 2009 CAS: 2009 INTERNATIONAL SEMICONDUCTOR CONFERENCE, VOLS 1 AND 2, PROCEEDINGS Book Series: International Semiconductor Conference: 89-92: 2009
25. THE APPLICATIONS OF CARBON NANOSTRUCTURES AND SEMICONDUCTOR MATERIALS IN THE DEVELOPMENT OF BIOSENSORS: Frasco M. F.; Buiculescu R.; Vamvakaki V.; Chaniotakis N.: 32nd International Semiconductor Conference Location: Sinaia, ROMANIA: 12-14, 2009: CAS: 2009 INTERNATIONAL SEMICONDUCTOR CONFERENCE, VOLS 1 AND 2, PROCEEDINGS Book Series: International Semiconductor Conference: 99-106 : 2009
26. Nanostructures in Bio-Sensing. University of Cyprus, Department of Mechanical and Manufacturing Engineering, April 8th, 2009.

27. Observatory Nano: Economic Analysis of Nanotechnology for Security Applications. Nanotechnology for security at the ObservatoryNano workshop in Dusseldorf in March 2009
28. Nanostructured and Bulk III-Nitride Semiconductors in Electrochemical Sensors and Biosensors N. Sofikiti, J. Grandal, M. Utrera, M. Sanchez-Garcia, E. Calleja, G. Tsiakatouras, E. Iliopoulos, D. Ajagunna, A. Georgakilas, N. Chaniotakis, *NANOTECH 2009 Huston Texas*.
29. Biomimetically Synthesized Silica-Carbon Nanofiber Nanocomposites for the Development of Highly Stable Electrochemical Biosensor Systems. Nikos Chaniotakis, Maria Hatzimarinaki and Vicky Vamvakaki; MRS: Nanotubes, Nanowires, Nanobelts, and Nanocoils--Promise, Expectations, and Status. Boston 2008.
30. Silicate Nanostructures for Enzyme Stabilization and Biosensor Design. 5th International Conference on Instrumental Methods of Analysis (IMA07), 30 September – 4 October, 2007, Patras, Greece.
31. Chemical Sensors and Biosensors based on Nanostructured Transduction and Stabilization Matrices. Nanoscale Science and Technology (VC-NST), October 21-25, 2007, Arkansas, USA.
32. Nanomaterials as Transducers in Biosensors. XIXth International symposium on Bioelectrochemistry and Bioenergetics, 1-4 April, 2007, Toulouse, France.
33. Ion Selective Sensors based on AlGaN/GaN HEMTs. Y. Alifragis, A. Georgakilas, G. Konstantinidis, E. Iliopoulos, A. Volosirakis, N. A. Chaniotakis. International Workshop on Nitride Semiconductors (IWN2006), October 22-27, 2006, Kyoto, Japan.
34. Carbon Nanostructures as Matrices for the Development of Chemical Sensors and Biosensors. International Congress on Analytical Sciences (ICAS 2006), June 25-30, 2006, Moscow, Russia.
35. The effects of Bologna treaty and the Euro Curriculum on the higher education in Greece. International Congress on Analytical Sciences (ICAS 2006), June 25-30, 2006, Moscow, Russia.
36. Nanomaterials in the Design of Chemical Sensors and Biosensors. A Bottom up Approach. (invited) N. A. Chaniotakis. European Materials Research Society (E-MRS) spring meeting 2006, May 29- June 2, 2006, Nice, France.

37. Chemically Modified Field Effect Transistors based on AlGa_N/Ga_N two-dimensional Electron Gas Heterostructures. Y. Alifragis, N. A. Chaniotakis, G. Konstantinidis, A. Volosirakis, A. Adikimenakis, A. Georgakilas. European Materials Research Society (E-MRS) spring meeting 2006, May 29- June 2, 2006, Nice, France.
38. Nanostructures in Biosensors, V. Vamvakaki, N. A. Chaniotakis. Nanotechnology in BioDiagnostics and Analytics (NBDA) Conference, 29-30 June, 2005, Grenoble, France.
39. Semiconductor Gallium Nitride based Anion Sensor. N. A. Chaniotakis, Y. Alifragis, A. Georgakilas, G. Konstantinidis. PITTCON 2005, February 27-March 4, 2005, Orlando Florida, USA.
40. Chemical Sensors and Biosensors based on Gallium Nitride. N. A. Chaniotakis, Y. Alifragis, I. Gherghi, G. Konstantinidis, A. Georgakilas. Second Conference on Microelectronics Microsystems and Nanotechnology, 14-17 November, 2004, Athens Greece.
41. Gallium Nitride based Chemical Sensor. Y. Alifragis, N. Chaniotakis G. Konstantinidis, A. Georgakilas. The 28th Workshop on Compound Semiconductor Devices and Integrated Circuits held in Europe (WOCSDICE 2004), 17-19 May, 2004, Smolenice Castle, Slovakia.
42. Ion-partitioning bulk membrane CHEMFET as highly sensitive calcium probe, Moschou EA; Chaniotakis NA Conference: International Conference on Electrochemical Sensors Location: MATRAFURED, HUNGARY, 2002
43. Method for the determination of water content in sultana raisins using a water activity probe, Fouskaki M; Karametsi K; Chaniotakis NA Conference: 2nd International Workshop on Water in Foods Location: REIMS, FRANCE Date: MAR 26-27, 2002

Patents

1. Solid Contact Ion-Selective Electrode. Nikolas A. Chaniotakis, Steven West. US patent # 5,840,168 Nov. 24, 1998.
2. Nanostructured composite material useful in biosensor which is used in multi-sensor device comprises carbon nanofibers and biochemical receptor immobilized on the carbon nanofibers, where the carbon nanofibers are activated Patent Number(s): EP2135843-A1 Inventor(s): CHANIOTAKIS N, CHATZIMARINAKI M, STAVGIANOUDAKI V, TSOUKALIS A, YAMVAKAKI V Patent Assignee Name(s) and Code(s):TSOUKALIS A(TSOU-Individual) Derwent Primary Accession Number: 2009-S58121 [54]
3. Interference Suppressing Buffer. S. West, J. Tsagatakis, X. Wen. International Patent Application 414,647. (Patent based on UOC Work, Tsagatakis was the student that developed the technology)

Books

1. N. A. Chaniotakis. Bio-chem-FETs: field effect transistors for biological sensing. Biological Identification: DNA amplification and sequencing, optical sensing, lab-on-chip and portable systems Editor: Paul Schaudies, GenArraytion Inc., USA Woodhead Publishing Limited, in preparation.
2. N. A. Chaniotakis Semiconductor quantum dots in chemical sensors and biosensors Nanosensors for chemical and biological applications Sensing with nanotubes, nanowires and nanoparticles Editor: Kevin C. Honeychurch, University of the West of England, UK, Woodhead Publishing Limited. In preparation
3. N. Chaniotakis, R. Buiculescu. Biosilica-nonocomposites-nanobiomaterials for biomedical engineering and sensing applications. Ashutosh Tiwari, Hisatoshi Kobayashi and Anthony PF Turner Nanobiomaterials for Intelligent Medical Devices Wiley-Scrivener Publishing LLC, USA. In press
4. N. Chaniotakis, Chapter 4: Fullerene based Electrochemical Detection Methods for biosensing, in Nanotechnologies for the Life Sciences Volume 8, Nanomaterials for Biosensors. Ed. by Challa Kumar, 2007 Wiley-VCH, Verlag GmbH & Co. KGaA, Weinheim.

5. N. Chaniotakis, Organotin compounds as Anion –Selective Carriers in Chemical Sensors, Tin Chemistry, Fundamentals, Frontiers and Applications. Editors Alwyn G. Davies, Marcel Gielen, Keith H. Pannel, Edward R.T. Tiekink, 2008 John Wiley & Sons, Ltd-VCH.
6. Chapter 15 Ultra-sensitive determination of pesticides via cholinesterase-based sensors for environmental analysis, Davis, F., Law, K.A., Chaniotakis, N.A., Fournier, D., Gibson, T., Millner, P., Marty, J.-L., (...), Higson, S.P.J. 2007 Comprehensive Analytical Chemistry 49 , pp. 311-330
7. N. Chaniotakis, N. Sofikiti, V. Vamvakaki, Chapter 5 Novel Semiconductor Materials for the Development of Chemical Sensors, Chemical Sensors Fundamentals of Sensing Materials, Volume 3 Polymers and Other Materials. Edited by Ghenadii Korotcenkov, **2010** Momenum Press, LLC, New York.
8. Daniel C. Harris, Quantitative Chemical Analysis, Translation in Greek Volumes I &II, N. Chaniotakis, M. Fouskaki, 2009, 2010 Crete University Press, Iraklion, Greece.
9. Skoog, D. A.,Holler, F.J. and Nieman T.A. Principles of Instrumental Analysis, Translation in Greek M. Karayiannis, K. Efstathiou, N. Chaniotakis, **2002** Kostarakis, Athens.
10. Ion-partitioning membranes as electroactive elements for the development of a novel cation-selective CHEMFET sensor system, Moschou EA; Chaniotakis NA Editor(s): Bhattacharyya D; Butterfield DA, Source: NEW INSIGHTS INTO MEMBRANE SCIENCE AND TECHNOLOGY: POLYMERIC AND BIOFUNCTIONAL MEMBRANES Book Series: MEMBRANE SCIENCE AND TECHNOLOGY SERIES Volume: 8 Pages: 393-413 Published: 2003
11. Natural Approach to Chemistry. Text book. I am the Chemistry consultant for this book
12. Natural Approach to Chemistry. Laboratory Experiments. I am an author in this book

Research Projects

European grants

1. Multiparametric detection of bio-molecule conjugated nanoparticles for the diagnostic investigation of mycobacterial infections of humans and animals (NANOMYC)

Participant

Budget: 278000.00 €

Source of Funding: European Union, Contract No. STREP 036812

Duration: 1/1/2007 - 28/2/2010

The NANOMYC project aims to develop a highly sensitive and specific, quantifiable detection system for molecular and immunology diagnostic markers associated with infection caused by *M. tuberculosis* complex (human and animal tuberculosis, implicated in sarcoidosis) and *M. paratuberculosis* (animal paratuberculosis, implicated in Crohn's disease). To this goal the consortium combines nanotechnology and molecular biology incorporating the recent advances on the sequencing of mycobacterial genomes to routine diagnostics. The NANOMYC assay is developed in order to be applied for: a) in-field diagnostics using portable devices for evaluation of liquid samples, and b) manual and automated evaluation of solid samples using fluorescence resonance energy transfer.

2. Synthesis and Application of Nanostructured Tethered Silicates (SANTS)

Budget: 270492.00 €

Source of Funding: European Union, Contract No. STREP 0033254

Duration: 1/8/2006 – 31/1/2010

The SANTS project investigates the parameters that influence the ability of biosilicating peptides and peptide mimics to entrap enzymes, the tethering of nanostructured biosilica layers and nanoparticles, and the use of these tethered silicates for improved biosensors and biocatalysis involving single enzymes and multi-enzyme cascades. The SANTS project

employs a wide range of cutting edge biochemical, electrochemical, molecular biology and biophysical approaches, provided by a world class interdisciplinary research team who are experts in biosensor and biocatalysis research.

3. New generation of GaN-based sensor arrays for nano- and pico-fluidic systems for fast and reliable biomedical testing (GANANO)

Budget: 268950.18 €

Source of Funding: European Union, Contract No. STREP STREP 505641-1

Duration: 1/1/2004 - 28/2/2009,

The goal of the project is to develop a novel Gallium Nitride (GaN) based integrated system for fast physical, chemical, and biological analysis of metabolites, pharmaceuticals, proteins and pathogens in aqueous nano- and pico-droplets. The project explores the frontiers of nanotechnologies through development and integration of electronic sensor arrays, optical components (visible and UV light emitters and detectors), and a nano-fluidic dosing device, to form a multifunctional system based on GaN micro- and nanostructures. Optimized for physical, chemical, and biological analysis of very small amounts of liquid, the system will support long-term innovations in bio- medical applications, industrial testing, and development of pharmaceuticals.

4. Sensor Arrays for Environmental, Generic and Routine Detection of Pesticides (SAFEGARD)

Budget: 198563.55 €

Source of Funding: European Union, Contract No.QLK3-CT-2000-000481

Duration: 1/12/2000 - 30/11/2007

The main focus of the project was the development of biosensors, based on specifically tailored enzymes known as cholinesterases - which are the target of many pesticides. Within SAFEGARD dedicated instrumentation was also developed and its associated software for the detection, quantification and monitoring of pesticide-related pollution. "This project permits

detection limits of pesticides such as Paraxon for environmental protection applications, down to concentrations that until now were unobtainable.

5. Development of Collaboration research in Instrumental Methods of Analysis for food quality and safety in the expanded European Union

Coordinator

Budget: 25026.00 €

Source of Funding: European Union INTAS, Contract No. 04-86-959

Duration: 26/1/2005 - 26/1/2006

National Grants

6. Development of biosensor microsystems for the remote monitoring of toxic substances

Coordinator

Budget: 100993.00 €

Source of Funding: GSRT Greece PENED, Contract No 03ED436

Duration: 1/12/2005 - 30/6/2009

7. An insulin Infusion Intelligent System (SMARTDIAB)

Budget: 73047.00 €

Source of Funding: GSRT Greece, Contract No YB/58

Duration: 1/6/2004 - 31/5/2008

Aim of SMARTDIAB integrates state-of-the-art technologies in the fields of biosensors, telecommunications, simulation algorithms, and data mining in order to develop a Type 1 diabetes patient's management system. A smart biosensor able to measure the blood glucose concentration was developed. The sensor communicates with a programmable micro-pump

for insulin infusion. The measured blood glucose levels provide input to an Insulin Infusion Advisory System (IIAS), which will be used for the calculation of the insulin pumps infusion parameters.

8. Resonance Raman FTIR studies of the NO reduction to N2O by the cytochrome oxidoreductase ba3 from *Thermus Thermophilus*

Budget: 69585.51 €

Source of Funding: Ministry of Education, Pythagoras

Duration: 1/3/2004 - 31/12/2007

9. Nanostructure-based sensors and biosensors

Coordinator

Budget: 33530.58 €

Source of Funding: Ministry of Education, Iraklitos

Duration: 8/11/2002 - 12/12/2006

10. Creation of a spin-off company, with expertise in chemical sensor development, analytical method development and quality assurance

Coordinator

Budget: 41176.89 €, **Source of Funding:** GSRT Greece PRAXE, Contract No 01PRAXE152,

Duration: 18/10/2002 - 18/4/2004