

**ΕΘΝΙΚΟ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟ
ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ**

ΤΜΗΜΑ ΧΗΜΕΙΑΣ

**ΠΕΠΡΑΓΜΕΝΑ
ΕΡΕΥΝΗΤΙΚΗΣ ΔΡΑΣΤΗΡΙΟΤΗΤΑΣ**

1990 - 1995



1996

**NATIONAL AND CAPODISTRIAN
UNIVERSITY OF ATHENS**

DEPARTMENT OF CHEMISTRY

RESEARCH ACTIVITY

1990 - 1995



1996

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Σε συνέχεια των προηγούμενων αντίστοιχων εκδόσεων των ερευνητικών πεπραγμένων του Τμήματος Χημείας, στο παρόν τεύχος περιλαμβάνονται οι τίτλοι των διδακτορικών διατριβών και πρωτότυπων ερευνητικών δημοσιεύσεων, που καλύπτουν την εξαετία 1990-1995. Κατά το διάστημα αυτό εγκρίθησαν 24 διδακτορικές διατριβές και εδημοσιεύθησαν 311 πρωτότυπα ερευνητικά άρθρα σε διάφορα έγκυρα επιστημονικά περιοδικά.

Το δημοσιευμένο έργο των μελών ΔΕΠ του Τμήματος Χημείας δεν περιορίζεται αποκλειστικά και μόνο στα αναφερόμενα εδώ άρθρα. Κατά το παραπάνω διάστημα σημαντική υπήρξε σε αριθμό η συγγραφή βιβλίων, εκπαιδευτικών βοηθημάτων, τμημάτων (κεφαλαίων) σε εξειδικευμένα ξενόγλωσσα συγγράμματα ή τακτικές εκδόσεις κατόπιν προσκλήσεως των εκδοτών. Επίσης σημαντική σε αριθμό και ποιότητα υπήρξε η συγγραφή γενικών άρθρων ανασκοπήσεως σε επιστημονικά περιοδικά, όπως επίσης και σε πρακτικά συνεδρίων.

Το Τμήμα Χημείας ευχαριστεί θερμά τον Καθηγητή κ. Μ. Κουμπάρη, που ανέλαβε την επιμέλεια της έκδοσης αυτής, σε συνεργασία με τον Καθηγητή κ. Ν. Χατζηχρηστίδη, τους Αναπλ. Καθηγητές κ. Κ. Δημόπουλο και Θ. Καλογεράκο και τους Επίκ. Καθηγητές Αθ. Βαλαβανίδη και Σπ. Κοΐνη, που ανέλαβαν τη συλλογή των τίτλων των εργασιών από κάθε Εργαστήριο του Τμήματος.

Κων/νος Ευσταθίου
Πρόεδρος του Τμήματος Χημείας

Δεκέμβριος 1996

Σημείωση: Το περιεχόμενο της παρούσας εκδόσεως περιλαμβάνεται ως αρχείο στην ηλεκτρονική σελίδα (home page) του Τμήματος Χημείας (WEB site: <http://www.dc.uoa.gr>) και μπορεί να αναγνωσθεί από κάθε ενδιαφερόμενο μέσω του δικτύου Internet, αφού ανακληθεί με διαδικασία FTP.

ΕΡΓΑΣΤΗΡΙΟ ΑΝΟΡΓΑΝΗΣ ΧΗΜΕΙΑΣ
LABORATORY OF INORGANIC CHEMISTRY

A. Διδακτορικές Διατριβές
Ph. D. Theses

1. Χ.-Α. Μητσοπούλου:
Σύνθεση διθειολενικών συμπλόκων του βολφραμίου και μολυβδαινίου και μελέτη της φωτοκαταλυτικής και καταλυτικής δράσεως του συμπλόκου τρις-[1-(4-μεθοξυφαινυλο)-2-φαινυλ-1,2-αιθυλενοδιθειολενικού -5,5'] βολφραμίου. (1990)

C. Mitsoroulou:
Synthesis of tungsten and molybdenum dithiolene complexes and study of the photocatalytic and catalytic activity of the complex compound tris-[1-(4-methoxyphenyl)-2-phenyl-1,2-ethylenedithiolene-5,5'] tungsten. (1990)
2. Μ. Δασενάκης:
Χημική μελέτη της διακίνησης Al-Fe-Mn-Pb-Cu-Zn στις εκβολές του Αχελώου. (1990)

M. Dassenakis:
Chemical study of the transport of Al-Fe-Mn-Pb-Cu-Zn in the Acheloos estuary. (1990)
3. Β. Γ. Πουλοπούλου:
Νέες απόψεις της χημείας του χρωμίου. (1993)

V. G. Pouloroulou:
Novel aspects of chromium chemistry. (1993)
4. Ι. Δ. Κοβάνης:
Σύνθεση και μελέτη αργίλλων υποστηλωμένων με οξειδία μετάλλων στοιχείων μεταπτώσεως. (1994)

J. D. Kovanis:
Synthesis and study of clays pillared with transition metal oxides. (1994)
5. Α. Κ. Σουλαντίκα:
Σύνθεση και μελέτη της δομής και της καταλυτικής δραστηριότητας, στην υδροφορμυλίωση των αλκενίων, νέων συμπλόκων ενώσεων του Rh(I) με κυστεΐνη και πενικιλλαμίνη. (1995)

A. K. Soulantika:

Synthesis and study of the structure and the catalytic activity on the hydroformylation of alkenes, of novel rhodium(I) compounds with cysteine and penicillamine. (1995)

6. N. A. Ψαρουδάκης:
Μελέτη και χαρακτηρισμός των προϊόντων αναγωγής αλογονούχων πλειάδων του ρηνίου. (1995)

N. A. Psaroudakis:
Study and characterization of reduction products of halogen containing rhenium clusters. (1995)

7. Τρ. Καλούδης:
Επίδραση ιόντων σιδήρου στην καταστροφή φαινολικών ρύπων στο νερό με χρήση γ-ακτινοβολίας. (1995)

Tr. Kaloudis:
Effect of iron ions on the destruction of phenolic pollutants in water using γ-radiation. (1995)

8. Χρ. Ζέρη:
Εφαρμογή της μαγνητικής μεθοδολογίας σε ανοιχτά θαλάσσια συστήματα. Η περίπτωση της ΒΔ Μεσογείου. (1995)

C. Zeri:
Application of magnetic methodology in open marine systems. The case of NW Mediterranean. (1995)

**B. Πρωτότυπες ερευνητικές εργασίες
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1. O. Markopoulou, J. Markopoulos, D. Nicholls:
Synthesis of 3-butanoyl- and 3-benzoyl-4-hydroxy-3-pyrrolin-2-ones and their complexes with metal ions.
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Chemometrics, **5**, 21 (1991)
6. A. Petrou, M. Koromantzou, J. M. Tsangaris:
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8. A. Lekchiri, M. Brilhli, C. Methenitis, J. Morchellet-Sauvage, M. Morchellet:
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Evolution of trace metal levels and magnetic properties in sediments of the Elefsis Gulf, Greece.
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15. A. Petrou, M. Koromantzou, J. M. Tsangaris:
Coordination complexes of caffeic and ferulic acids with Cu(II), Ni(II), Co(II) and Fe(III).
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16. A. L. Petrou:
Binuclear vanadium(V) and vanadium(IV,V) complexes of dihydrocaffeic, caffeic and ferulic acids.
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18. G. Pneumatikakis, C. Chassapis, A. Rontoyianni:
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Synthesis, NMR spectroscopic and X-ray crystallographic studies of N-acetyl-3-butanoyltetramic acid.
J. Chem. Soc., Perkin Trans., **2**, 1271 (1994)
21. M. Dassenakis, E. Krasakopoulou, B. Matzara:
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22. A. L. Petrou, S. P. Perlepes:
Preparation and properties of Mn(II) and Mn(III) complexes possessing ligands with carboxylate and phenolic/phenoxide groups.
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Synthesis, spectroscopic and magnetic resonance studies of mercury(II) and methylmercury(II) complexes of azathioprine, a biologically active mercaptopurine derivative.
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24. H. T. Chifotides, G. Pneumatikakis, N. Katsaros:
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27. V. Aletras, N. Hadjiliadis, A. Lymberopoulou-Karaliota, I. Rombeck, B. Lippert:
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28. K. Soulantica, S. Sirol, S. Koinis, G. Pneumatikakis, Ph. Kalck:
Direct synthesis of acetals by rhodium catalyzed hydroformylation of alkenes in the presence of orthoformate.
J. Organomet. Chem., **498**, C10-13 (1995)
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Oligonuclear zinc(II) complexes of dianions of hydrocaffeic, caffeic and feroulic acids.
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30. A. L. Petrou:
A mechanism of the first stage of the reaction between chromium(II) and some unsaturated ligands. Formation of σ -bonded binuclear organochromium intermediates with carbon-carbon bridges.
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Molecular dynamics of tricarbonyl(pentamethylbenzene)chromium: A ^{13}C solid-state nuclear magnetic resonance study.
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32. P. Falaras, C. A. Mitsopoulou, D. Argyropoulos, E. Lyris, N. Psaroudakis, E. Vrachnou, D. Katakis:
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Inorg. Chem., **34**, 4536 (1995)
33. C. Methenitis, G. Pneumatikakis, M. Pitsikalis, J. Morchellet, M. Morchellet:
Polymers with amino acids in their side chain: Conformation of poly(N-methacryloyl-L-methionine).
J. Polym. Scien., Part A, Chem. Ed., **33**, 2233 (1995)
34. M. Scoullou, J. Hatzianestis:
Trace metals in sediment cores of Mikri Prespa.
Air Pollution Research Report, **No 20**, 129 (1995)
35. M. Dassenakis, A. Degaita, M. Scoullou:
Trace metals in sediments of a Mediterranean estuary affected by human activities: Acheloos river estuary, Greece.
The Science of the Total Environment, **168**, 19 (1995)

ΕΡΓΑΣΤΗΡΙΟ ΑΝΑΛΥΤΙΚΗΣ ΧΗΜΕΙΑΣ
LABORATORY OF ANALYTICAL CHEMISTRY

A. Διδακτορικές Διατριβές
Ph. D. Theses

1. Κ. Α. Γεωργίου:
Ανάπτυξη νέων αυτοματοποιημένων φασματοφωτομετρικών μεθόδων ανάλυσης με την τεχνική εισαγωγής δείγματος σε ροή και εφαρμογές στη φαρμακευτική ανάλυση. (1990)

Κ. Α. Georgiou:
Development of new automated spectrophotometric methods of analysis using the flow injection technique and applications in pharmaceutical analysis. (1990)
2. Ν. Ε. Ζούλη:
Μελέτη της προσυγκεντρώσεως οργανικών ενώσεων σε ηλεκτρόδιο γραφικής πάστας για βολταμμετρικό προσδιορισμό ιχνοποσοτήτων τους. (1990)

Ν. Ε. Zoulis:
Study on the preconcentration of organic compounds at a carbon paste electrode for their voltammetric determination in trace amounts. (1990)
3. Σ. Α. Χαλβατζής:
Αναλυτικές εφαρμογές Ν-βρωμοσουλφιμιδίου. (1992)

S. A. Halvatzis:
Analytical applications of N-bromosuccinimide. (1992)
4. Α. Μ. Γεράκης:
Μελέτη μικυλλιακών συστημάτων με εκλεκτικά ηλεκτρόδια ιόντων και αναλυτικές εφαρμογές σε ποτενσιομετρικές τεχνικές. (1994)

Α. Μ. Gerakis:
Study of micellar systems using ion selective electrodes and analytical applications. (1994)
5. Μ. Ε. Γεωργίου:
Μελέτες συνδέσεως μικρομορίων - μακρομορίων με την τεχνική εισαγωγής δείγματος σε ροή. (1995)

M. E. Georgiou:

Binding studies of micromolecules with macromolecules using the flow injection technique. (1995)

**B. Πρωτότυπες ερευνητικές εργασίες
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1. N. E. Zoulis, D. P. Nikolelis, C. E. Efstathiou:
Pre-concentration of indolic compounds at a carbon-paste electrode and indirect determination of L-tryptophan in serum by adsorptive stripping analysis.
Analyst, **115**, 291 (1990)
2. D. P. Nikolelis, U. J. Krull:
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3. C. A. Georgiou, M. A. Koupparis:
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Analyst, **115**, 309 (1990)
4. P. E. Macheras, M. A. Koupparis, S. G. Antimisariis:
Drug binding and solubility in milk.
Pharmaceutical Research, **7**, 537 (1990)
5. K. G. Sarantinou, I. I. Christofidis, M. A. Koupparis:
Enzyme immunoassay for total triiodothyronine in human serum.
Clinical Chemistry and Enzymology Communications, **3**, 237 (1990)
6. G. N. Valsami, P. E. Macheras, M. A. Koupparis:
Binding studies of ions with cyclodextrins using ion-selective electrodes.
Journal of Pharmaceutical Science, **79**, 1087 (1990)
7. J. G. Dikaiakos, C. G. Tsitouras, P. A. Siskos, D. A. Melissos, P. Nastos:
Rain composition in Athens, Greece.
Atmospheric Environment, **24B(1)**, 171 (1990)
8. I. G. Viras, K. Athanassiou, P. A. Siskos:
Determination of mutagenic activity and benzo-a-pyrene concentration in Athens atmosphere.
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9. G. E. Miliadis, P. A. Siskos, G. S. Vassilikiotis:
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Analyst, **115**, 613 (1990)
11. N. Grekas, A. C. Calokerinos:
Determination of thiamine by continuous flow chemiluminescence measurement.
Talanta, **37**, 1043 (1990)
12. I. I. Koukli, A. C. Calokerinos:
Determination of quinine and quinidine by continuous-flow chemiluminescence.
Analytica Chimica Acta, **236**, 463 (1990)
13. S. A. Halvatzis, M. M. Timotheou-Potamia, A. C. Calokerinos:
Continuous-flow chemiluminescence determination of isoniazid by oxidation with N-bromosuccinimide.
Analyst, **115**, 1229 (1990)
14. I. I. Koukli, E. G. Sarantonis, A. C. Calokerinos:
Effect of sensitizers on the chemiluminescent reduction of cerium(IV) by sulphite.
Analytical Letters, **23**, 1167 (1990)
15. I. I. Koukli, A. C. Calokerinos:
Continuous-flow chemiluminescence determination of some corticosteroids.
Analyst, **115**, 1553 (1990)
16. A. B. Syropoulos, E. G. Sarantonis, A. C. Calokerinos:
Flow-injection chemiluminometric analysis of some steroids by their sensitizing effect on the bromate-sulphite reaction.
Analytica Chimica Acta, **239**, 195 (1990)
17. U. J. Krull, D. P. Nikolelis, J. D. Brennan, R. S. Brown, M. Thompson, V. Ghaemmaghami, K. M. Kallury:
Control of ion transport through lipid membranes.
Analytical Proceedings, **28**, 370 (1991)

18. D. P. Nikolelis, J. D. Brennan, R. S. Brown, G. McGibbon, U. J. Krull:
Ion permeability through bilayer lipid membranes for biosensor development: Control by chemical modification of interfacial regions between phase domains.
Analyst, **116**, 1221 (1991)
19. D. G. Konstantianos, P. C. Ioannou, C. E. Efstathiou:
Simultaneous determination of acetylsalicylic and salicylic acids in human serum and aspirin formulations by second-derivative synchronous fluorescence spectrometry
Analyst, **116**, 373 (1991)
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21. J. G. Pentari, C. E. Efstathiou, M. A. Koupparis:
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International Journal of Pharmaceutics, **77**, 41 (1991)
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Construction and evaluation of an automated flow injection - stopped flow analyser for multipoint reaction rate spectrophotometric methods. Determination of ammonia nitrogen, creatinine and phosphate.
Journal of Automatic Chemistry, **13(5)**, 199 (1991)
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Flow injection-stopped flow kinetic spectrophotometric determination of drugs based on the micellar-catalysed reaction with 1-fluoro-2,4-dinitrobenzene.
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24. J. Apostolakis, C. A. Georgiou, M. A. Koupparis:
Use of ion-selective electrodes in kinetic flow-injection analysis: Determination of phenolic and hydrazino-drugs with 1-fluoro-2,4-dinitrobenzene using a fluoride-selective electrode.
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Binding study of the fluorescence probe 1-anilino-8-naphthalenesulfonate to human plasma and human and bovine serum albumin using potentiometric titration.
Pharmaceutical Research, **8**, 888 (1991)

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Polycyclic aromatic hydrocarbons and mutagens in ambient air particles sampled in Thessaloniki - Greece.
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27. A. B. Syropoulos, A. C. Calokerinos:
Continuous flow chemiluminometric determination of some tetracyclines.
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Pre-concentration of organic compounds at a diphenylether - graphite paste electrode and determination of vanillin by adsorptive / extractive stripping voltammetry.
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29. C. K. Polydorou, C. E. Efstathiou:
A microcomputer controlled system for potentiometric stripping analysis.
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Stochastic calculation of critical Q-test values for the detection of outliers in measurements.
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31. D. P. Nikolelis, J. D. Brennan, R. S. Brown, U. J. Krull:
Control of ion transport across bilayer lipid membranes by adjustment of surface charge associated with phase domain structures.
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32. D. P. Nikolelis, U. J. Krull:
Establishment and control of artificial ion-conductive zones for lipid membrane biosensor development.
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Reliable and facile method for preparation of solventless bilayer lipid membranes for electroanalytical investigations.
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ΕΡΓΑΣΤΗΡΙΟ ΟΡΓΑΝΙΚΗΣ ΧΗΜΕΙΑΣ
LABORATORY OF ORGANIC CHEMISTRY

A. Διδακτορικές διατριβές
Ph. D. Theses

1. A. Νικολάου:
Σύνθεση και ενζυματικές μελέτες αναστολέων κολλαγενασών μικρο-οργανισμών. (1991)
A. Nikolaou:
Synthesis and enzymatic studies of bacterial collagenase inhibitors. (1991)
2. A. Σ. Νούλα:
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C. S. Noula:
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3. Σ. Μ. Ιωσηφίδου:
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LABORATORY OF PHYSICAL CHEMISTRY

A. Διδακτορικές Διατριβές
Ph. D. Theses

1. Σ. Καπέλλος:
Ab initio υπολογισμοί επί των αμιδικών μεταλλοϊόντων MNH_2^+ , M=Ti, V, Cr, Mn. (1991)

S. Kapellos:
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LABORATORY OF INDUSTRIAL CHEMISTRY

A. Διδακτορικές Διατριβές
Ph.D. Theses

1. A. Βασιλειάδης:
Ομοπολυμερή και συμπολυμερή του βινυλοδικυκλοπενταδιενυλοσιδήρου. Σύνθεση - Χαρακτηρισμός - Ιδιότητες. (1991)
A. Vasiliadis:
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2. E. Ιατρού:
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E. Iatrou:
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3. A. Πίσπας:
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A. Pispas:
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5. K. Καφετζόπουλος:
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K. Kafetzopoulos:
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G. Tselikas:
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ΕΡΓΑΣΤΗΡΙΟ ΧΗΜΕΙΑΣ ΤΡΟΦΙΜΩΝ
LABORATORY OF FOOD CHEMISTRY

A. Διδακτορικές Διατριβές
Ph.D. Theses

1. Σ. Αντωνοπούλου:
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S. Antonopoulou:
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B. Πρωτότυπες ερευνητικές εργασίες
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10. S. Koussissis, Ch. E. Semidalas, S. Antonopoulou, V. M. Kapoulas, C. A. Demopoulos, V. G. Kalyvas:
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