

Panayotis Kyritsis

Assistant Professor of Inorganic Chemistry

Education

B.Sc. in Chemistry, University of Athens (1987)

Ph.D. in Chemistry, University of Newcastle-upon-Tyne (1993)

Post Doctoral work at the University of Newcastle-upon-Tyne, CEA Grenoble, University of Oxford

Research Fields of Interest

1. Structural, electronic and catalytic properties of transition metal compounds.
2. Structure-function relationships in redox metalloproteins. Protein Electrochemistry.

Teaching

Undergraduate:

Inorganic Chemistry III (Course and Laboratory)

General Chemistry for students of Pharmacy

General Chemistry for students of Biology and Physics (Laboratory)

Graduate:

Bioinorganic Chemistry, Basic Biocatalysis

Book authorship

"Experiments in General and Inorganic Chemistry" (Stamoulis ed., 2005, in Greek, 8 co-authors)

Selected Papers

1. "The reactivity of spinach plastocyanin mutants with inorganic oxidants $[\text{Fe}(\text{CN})_6]^{3-}$ and $[\text{Co}(\text{phen})_3]^{3+}$ ", P. Kyritsis; L.G. Lundberg; M. Nordling; T. Vännngård; S. Young; N.P. Tomkinson and A.G. Sykes, *J. Chem. Soc., Chem. Commun.*, 1991, 1441-1442.
2. "Protein-protein reactions involving plastocyanin, cytochrome f and azurin : self-exchange rate constants and related studies with inorganic complexes", D.G.H.A. de Silva; D. Beoku-Betts; P. Kyritsis; K. Govindaraju; R. Powls; N.P. Tomkinson and A.G. Sykes, *J. Chem. Soc., Dalton Trans.*, 1992, 2145-2151.
3. "Pulse radiolysis studies on the oxidised form of the multicopper enzyme ascorbate oxidase: evidence for two intramolecular electron-transfer steps", P. Kyritsis; A. Messerschmidt; R. Huber; G.A. Salmon and A.G. Sykes, *J. Chem. Soc., Dalton Trans.*, 1993, 731-735.
4. "Reactions of five spinach plastocyanin mutants with $[\text{Fe}(\text{CN})_6]^{3-}$ and $[\text{Co}(\text{phen})_3]^{3+}$, and related studies", P. Kyritsis, C. Dennison, W. McFarlane, M. Nordling, S. Young, T. Vännngård; and A.G. Sykes, *J. Chem. Soc., Dalton Trans.*, 1993, 2289-2296.
5. "Redox reactivity of the type 1 (blue) copper protein amicyanin from *Thiobacillus versutus* with inorganic complexes", P. Kyritsis, C. Dennison, A. P. Kalverda, G.W. Canters and A.G. Sykes, *J. Chem. Soc., Dalton Trans.*, 1994, 3017-3023.
6. "The type 1 (blue) copper protein amicyanin from *Thiobacillus versutus* : line-broadening effects of Cr(III) complexes on the ^1H NMR spectrum, and related studies." C. Dennison, P. Kyritsis, A.P. Kalverda, G.W. Canters, W. McFarlane and A.G. Sykes, *J. Chem. Soc., Dalton Trans.*, 1995, 3395-3400.

7. "Determination of the self-exchange rate constant for rusticyanin from *Thiobacillus ferrooxidans* and a comparison with values for other type 1 copper proteins", P. Kyritsis, C. Dennison, W.J. Ingledew, W. McFarlane and A.G. Sykes, *Inorg. Chem.*, 1995, 34, 5370-5374.
8. Mechanistic studies on the *cis*-[V(O)₂(H₂O)₄]⁺ and [Mo(CN)₈]³⁻ oxidations of the complex [(C₂O₄)Re(O)₂Re(C₂O₄)₂]⁴⁻, J.W. Atkinson, M.-C. Hong, D.A. House, P. Kyritsis, Y.-J. Li, M. Nasreldin and A.G. Sykes, *J. Chem. Soc., Dalton Trans.*, 1995, 3317-3322
9. "Redox reactivity of the Type 1 copper protein amicyanin from *Thiobacillus versutus* with its physiological partner cytochrome cyt c550 and inter-protein cross-reaction studies", P. Kyritsis, T. Kohzuma and A.G. Sykes, *Biochim. Biophys. Acta*, 1996, 1295, 245-252.
10. "The influence of conserved aromatic residues on the electron-transfer reactivity of 2[4Fe-4S] ferredoxins", I. Quinkal, P. Kyritsis, T. Kohzuma, S.-C. Im, A.G. Sykes and J.-M. Moulis, *Biochim. Biophys. Acta*, 1996, 1295, 201-208.
11. "Electron self-exchange and cross-reaction studies on wild-type *Clostridium pasteurianum* rubredoxin and its Val8Glu variant", S.C. Im, H.-Y. Zhuang-Jackson, T. Kohzuma, P. Kyritsis, W. McFarlane and A.G. Sykes, *J. Chem. Soc., Dalton Trans.*, 1996, 4287-4294.
12. "Electron transfer between [4Fe-4S] clusters studied by proton magnetic resonance spectroscopy", P. Kyritsis, J.G. Huber, I. Quinkal, J. Gaillard and J.-M. Moulis, *Biochemistry*, 1997, 36, 7839-7846.
13. "The two [4Fe-4S] clusters in *Chromatium vinosum* ferredoxin have largely different reduction potentials: structural origin and functional consequences", P. Kyritsis, O.M. Hatzfeld, T.A. Link and J.-M. Moulis, *J. Biol. Chem.*, 1998, 273, 15404-15411.
14. "Unusual NMR, EPR and Mössbauer properties of *Chromatium vinosum* 2[4Fe-4S] ferredoxin", P. Kyritsis, R. Kümmerle, J.G. Huber, J. Gaillard, B. Guigliarelli, C. Popescu, E. Münck and J.-M. Moulis, *Biochemistry*, 1999, 38, 6335-6345.
15. "A scanning tunnelling microscopy study of *Clostridium pasteurianum* rubredoxin", R. Mukhopadhyay, J.J. Davis, P. Kyritsis, H.A.O. Hill and J. Meyer, *J. Inorg. Biochem.*, 2000, 78, 251-254.
16. "Electron transfer properties of iron-sulfur proteins", R. Kümmerle, P. Kyritsis, J. Gaillard and J.-M. Moulis, *J. Inorg. Biochem.*, 2000, 79, 83-91.
17. "Catalytic reductive dehalogenation of hexachloroethane by molecular variants of cytochrome P450_{cam} (CYP101)", M.E. Walsh, P. Kyritsis, N.A.J. Eady, H.A.O. Hill, and L.-L. Wong, *Eur. J. Biochem.*, 2000, 267, 5815-5820.
18. "Intramolecular electron transfer in [4Fe-4S] proteins: estimates of the reorganization energy and electronic coupling in *Chromatium vinosum* ferredoxin", R. Kümmerle, J. Gaillard, P. Kyritsis, J.-M. Moulis, *J. Biol. Inorg. Chem.*, 2001, 6, 446-451.
19. "Phenyl 2-pyridyl Ketone and its oxime in manganese carboxylate chemistry: synthesis, characterization, X-ray studies and magnetic properties of mononuclear, trinuclear and octanuclear complexes", C.J. Milios, T.C. Stamatatos, P. Kyritsis, A. Terzis, C.P. Raptopoulou, R. Vicente, A. Escuer, and S.P. Perlepes, *Eur. J. Inorg. Chem.*, 2004, 2885-2901.
20. "Di-2-pyridyl ketone oxime [(py)₂CNOH] in manganese carboxylate chemistry: mononuclear, dinuclear and tetranuclear complexes, and partial transformation of (py)₂CNOH to the *gem*-diolate(-2) form of di-2-pyridyl ketone leading to the formation of NO₃⁻", C.J. Milios, P. Kyritsis, C.P. Raptopoulou, A. Terzis, R. Vicente, A. Escuer and S.P. Perlepes, *Dalton Trans.*, 2005, 501-511.
21. "The First Cobalt Metallacrowns: Preparation and Characterization of Mixed-Valence Cobalt(II/III), Inverse 12-Metallacrown-4 Complexes", T.C. Stamatatos, S. Dionyssopoulou, G. Efthymiou, P. Kyritsis, C.P. Raptopoulou, A. Terzis, R. Vicente, A. Escuer, and S. P. Perlepes, *Inorg. Chem.*, 2005, 44, 3374-3376.

22. "Hydroformylation of alkenes catalyzed by new dirhodium aryloxide- and carboxylate-bridged complexes", I.D. Kostas, K. Vallianatou, P. Kyritsis, Z. Zednik, Z. Vohlidal, *Inorg. Chim. Acta*, 2004, 357, 3084-3088.
23. "The First Cobalt Metallacrowns: Preparation and Characterization of Mixed-Valence Cobalt(II/III), Inverse 12-Metallacrown-4 Complexes", T.C. Stamatatos, S. Dionyssopoulou, G. Efthymiou, P. Kyritsis, C.P. Raptopoulou, A. Terzis, R. Vicente, A. Escuer, and S. P. Perlepes, *Inorg. Chem.*, 2005, 44, 3374-3376.
24. "Structural, spectroscopic and magnetic properties of $M[(EPR_2)_2N]_2$ complexes, $M=Mn, Co, E=S, Se, R=Ph, Pr$. Covalency of M-S bonds from experimental data and theoretical calculations", D. Maganas, S.S. Staniland, A. Grigoropoulos, F. White, S. Parsons, N. Robertson, P. Kyritsis and G. Pneumatikakis, *Dalton Trans.*, 2006, 2301-2315.
25. "The structure of the $2[4Fe-4S]$ ferredoxin from *Pseudomonas aeruginosa* at 1.32 Å resolution. Comparison with other high resolution structures of ferredoxins and contributing structural features to reduction potential values", P. Giastas, N. Pinotsis, G. Efthymiou, M. Wilmanns, P. Kyritsis, J.-M. Moulis, I. M. Mavridis, *J. Biol. Inorg. Chem.*, 2006, 11, 445-458.
26. "Synthesis and characterization of new Rh^I complexes bearing CO, PPh_3 and chelate P,O - or Se,Se -ligands. Application to hydroformylation of styrene", K.A. Chatziapostolou, K.A. Vallianatou, A. Grigoropoulos, C.P. Raptopoulou, A. Terzis, I.D. Kostas, P. Kyritsis, G. Pneumatikakis, *J. Organom. Chem.*, 2007, 692, 4129-4138.
27. "Ligands that enforce unnatural stereospinomers", D. Maganas, P. Kyritsis, G. Aullón, S. Alvarez, *Dalton Trans.*, 2008, 2235-2237.
28. " $Ni[Pr_2P(E)NP(E)Pr_2]_2$ complexes: stereoisomers ($E = Se$) and square-planar coordination ($E = Te$)", N. Levesanos, S. Robertson, D. Maganas, C.P. Raptopoulou, A. Terzis, P. Kyritsis, T. Chivers, *Inorg. Chem.*, 2008, 47, 2949-2951.
29. "New unsymmetrical nickel 1,2-dithiolene complexes as candidate materials for optics and electronics", G.C. Anyfantis, G.C. Papavassiliou, N. Assimomytis, A. Terzis, V. Psycharis, C.P. Raptopoulou, P. Kyritsis, V. Thoma, I.B. Koutselas, *Solid State Sciences*, 2008, 10, 1729-1733.
30. "Crystal structures of the *Allochromatium vinosum* ferredoxin variants C57A and V13G and the homologous *Escherichia coli* ferredoxin. Insight into the protein and solvent contributions to the reduction potentials of $[4Fe-4S]^{2+/+}$ clusters", M. Saridakis, P. Giastas, G. Efthymiou, V. Thoma, J.-M. Moulis, P. Kyritsis, E.M. Mavridis, *J. Biol. Inorg. Chem.*, 2009, 14, 783-799.
31. "Structural and magnetic properties of the dinuclear $[Co_2\{(OPPh_2)_2N\}_4]$ complex: ferromagnetic coupling between the two $S=3/2$ Co(II) ions", E. Ferentinos, S.D. Chatziefthimiou, N. Robertson, P. Kyritsis, *Inorg. Chem. Commun.*, 2009, 12, 615-618.
32. "A W-band pulsed EPR/ENDOR study of $Co^{II}S_4$ coordination in the $Co[(SPPH_2)(SP'Pr_2)N]_2$ complex", S. Sottini, G. Mathies, P. Gast, D. Maganas, P. Kyritsis, and E.J.J. Groenen, *Phys. Chem. Chem. Phys.*, 2009, 11, 6727-6732.
33. "Structural effects of the chelating rings in *trans*- $[Ni\{Ph_2P(Se)NPPH_2-Se,P\}_2]$ and *trans*- $[Ni\{Ph_2P(Se)NPPH_2-Se,P\}\{Ph_2P(Se)N(H)PPH_2-Se,P\}]Cl \cdot CH_2Cl_2 \cdot H_2O$ complexes", N. Levesanos, I. Stamatopoulos, C.P. Raptopoulou, V. Psycharis, P. Kyritsis, *Polyhedron*, 2009, 28, 3305-3309.
34. "Controlled vinyl-type polymerization of norbornene with a Nickel(II) diphosphinoamine/methylaluminumoxane catalytic system", G.C. Vougioukalakis, I. Stamatopoulos, N. Petzetakis, C.P. Raptopoulou, V. Psycharis, A. Terzis, P. Kyritsis, M. Pitsikalas, N. Hadjichristidis, *J. Polym. Science, Part A Polymer Chemistry*, 2009, 47, 5241-5250.
35. "A multi-frequency high-field electron-paramagnetic-resonance study of $Co(II)S_4$ coordination", D. Maganas, S. Milikisyants, J.M.A. Rijnbeek, S. Sottini, N. Levesanos, P. Kyritsis, E.J.J. Groenen, *Inorg. Chem.*, 2010, 49, 595-605.

36. "Tetrahedral and square planar $Ni[(SPR_2)_2N]_2$ complexes, R = Ph & ⁱPr revisited: Experimental and theoretical analysis of interconversion pathways, structural preferences and spin delocalization", D. Maganas, A. Grigoropoulos, S.S. Staniland, S.D. Chatziefthimiou, A. Harrison, N. Robertson, P. Kyritsis, F. Neese, *Inorg. Chem.*, 2010, **49**, 5079-5093.
37. "Structural, spectroscopic and magnetic properties of structurally diverse metal coordination compounds, bearing imidodiphosphinate and diphosphinoamine ligands, as potential inhibitors of the Platelet Activating Factor (PAF), A.B. Tsoupras, M. Roulia, E. Ferentinos, I. Stamatopoulos, C.A. Demopoulos, P. Kyritsis, *Bioinorg. Chem. Appl.*, 2010, Article Number: 731202.
38. "Conversion of tetrahedral to octahedral structures upon solvent coordination: Studies on the $M[(OPPh_2)(SePPh_2)N]_2$ (M = Co, Ni) and $[Ni\{(OPPh_2)(EPPH_2)N\}_2(dmef)_2]$ (E = S, Se) complexes", E. Ferentinos, D. Maganas, C.P. Raptopoulou, V. Psycharis, A. Terzis, N. Robertson, P. Kyritsis, *Dalton Trans.*, 2010, in press, DOI:10.1039/C0DT00928H.

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