

ΓΕΩΡΓΙΟΣ ΠΑΠΑΔΟΓΙΑΝΝΑΚΗΣ

Πεδίον Έρευνας: Καταλυτικές αντιδράσεις υδροφορμυλίωσης, καρβονυλίωσης, υδροκαρβοξυλίωσης, συμπολυμερισμού, υδρογόνωσης και οξείδωσης των ολεφινών, αλκοολών, πολυαδιενίων και ανανεώσιμων υδατανθράκων όπως ινουλίνης, φρουκτόζης και παραγώγων των υδατανθράκων παρουσία υδατοδιαλυτών συμπλόκων των στοιχείων μετάπτωσης σε υδατικά/οργανικά διφασικά συστήματα και υδατικό περιβάλλον. Μικυλλιακή κατάλυση. Μηχανιστικές μελέτες των καταλυτικών αντιδράσεων.

ΔΗΜΟΣΙΕΥΣΕΙΣ

- 1) B. Fell and G. Papadogianakis
“Rhodium-catalyzed micellar two-phase hydroformylation of 1-tetradecene with surface active sulfobetaine derivatives of tris(2-pyridyl)phosphine as water-soluble complex ligands”
J. Mol. Catal., **66** (1991) 143-154.
- 2) B. Fell, G. Papadogianakis, W. Konkol, J. Weber and H. Bahrmann
“Hydrolytic stable ammonium salts of sulfonated organic phosphites and their use as cocatalysts in the rhodium-catalyzed hydroformylation of olefins”
J. Prakt. Chem./Chem.-Ztg., **335** (1993) 75-82.
- 3) B. Fell and G. Papadogianakis
“Rhodium-catalyzed two-phase hydroformylation of hex-1-ene with sulfonated tris(4-fluorophenyl)phosphines as water-soluble complex ligands”
J. Prakt. Chem./Chem.-Ztg., **336** (1994) 591-595.
- 4) B. Fell, Ch. Schobben and G. Papadogianakis
“Hydroformylation of homologous ω -alkenecarboxylic acid methyl esters catalyzed by water soluble rhodium carbonyl/tertiary phosphine complexes”
J. Mol. Catal. A: Chem., **101** (1995) 179-186.
- 5) S. Kanagasabapathy, Z. Xia, G. Papadogianakis and B. Fell
“Hydroformylation with Water- and Methanol-soluble Rhodium Carbonyl/phenyl-sulfonatoalkylphosphine Catalyst Systems - A New Concept for the Hydroformylation of Higher Molecular Olefins -”
J. Prakt. Chem./Chem.-Ztg., **337** (1995) 446-450.
- 6) G. Papadogianakis, L. Maat and R.A. Sheldon
“Catalytic Conversions in Water: a Novel Carbonylation Reaction Catalysed by Palladium Trisulfonated Triphenylphosphine Complexes”
J. Chem. Soc., Chem. Commun., **1994**, 2659-2660.
- 7) G. Papadogianakis, J.A. Peters, L. Maat and R.A. Sheldon
“Catalytic Conversions in Water: ^{17}O , $\{^1\text{H}\}^{31}\text{P}$ and ^{35}Cl NMR Study of a Novel Stoichiometric Redox Reaction Between PdCl_2 , tppts and H_2O [tppts= $\text{P}(\text{C}_6\text{H}_4-m-\text{SO}_3\text{Na})_3$]”
J. Chem. Soc., Chem. Commun., **1995**, 1105-1106.

- 8) G. Papadogianakis and R.A. Sheldon
 “Catalytic Conversions in Water: Environmentally Attractive Processes Employing Water Soluble Transition Metal Complexes”
New J. Chem., **20** (1996) 175-185.
- 9) G. Papadogianakis, L. Maat and R.A. Sheldon
 “Catalytic Conversions in Water. Part 4: Carbonylation of 5-hydroxymethylfurfural (HMF) and benzyl alcohol catalysed by palladium trisulfonated triphenylphosphine complexes”
J. Mol. Catal. A: Chem., **116** (1997) 179-190.
- 10) G. Papadogianakis, L. Maat and R.A. Sheldon
 “Catalytic Conversions in Water. Part 5: Carbonylation of 1-(4-isobutylphenyl)ethanol to Ibuprofen Catalysed by Water-Soluble Palladium-Phosphine Complexes in a Two-Phase System”
J. Chem. Technol. Biotechnol. **70** (1997) 83-91.
- 11) G. Papadogianakis, G. Verspui, L. Maat and R.A. Sheldon
 “Catalytic Conversions in Water. Part 6: A Novel Biphasic Hydrocarboxylation of Olefins Catalyzed by Palladium TPPTS Complexes [TPPTS= P(C₆H₄-*m*-SO₃Na)₃]”
Catal. Lett., **47** (1997) 43-46.
- 12) G. Papadogianakis and R.A. Sheldon
 “Catalytic Conversions in Water. Part 7: An Environmentally Benign Concept for Heterogenization of Homogeneous Catalysis”
Catalysis **13** (1997) 114-193.
- 13) G. Verspui, G. Papadogianakis and R.A. Sheldon
 “Catalytic Conversions in Water. Part 8: Carbonylation and Hydrocarboxylation Reactions Catalyzed by Palladium Trisulfonated Triphenylphosphine Complexes”
Catal. Today, **42** (1998) 449-458.
- 14) G. Verspui, G. Papadogianakis and R.A. Sheldon
 “Catalytic conversions in water. Part 9. High activity of the Pd/dpppr-s/Brönsted acid system in the alternating copolymerization of ethene and carbon monoxide {dpppr-s = C₃H₆-1,3-[P(C₆H₄-*m*- SO₃Na)₂]₂}”
Chem. Commun., **1998**, 401-402

ΠΑΤΕΝΤΕΣ

- 1) H. Bahrmann, B. Fell and G. Papadogianakis
 “Preparation of hydrolysis stable organic phosphites”
DE 3 942 787 B1 (1989), *EP 0 435 071 B1* (1990), *US 632 465* (1990) to **Hoechst AG**. *Chem. Abstr.*, **115** (1991) 183583c
 Εκτος της Γερμανίας και σε 11 κράτη της Ευρώπης και ΗΠΑ δηλώθηκε ακόμη στα εξής: Καναδάς [*CA Pat. Appl.*, CA 2 032 371 (1990)], Ιαπωνία [*Jpn. Kokai Tokkyo Koho*, JP Hei/2/402 868 (1990)], Αυστραλία [*AU 68 368/90* (1990)], Βραζιλία [*BR PI 90 06 501* (1990)], Τοϊβάν [*TW 79/109 500* (1990)], Ν.Κορέα [*KO 90/20 650* (1990)]
- 2) H. Bahrmann, B. Fell and G. Papadogianakis

“Process for the preparation of aldehydes”
DE 3 942 954 B1 (1989), EP 0 435 084 B1 (1990), US 632 464 (1990) to **Hoechst AG**. *Chem. Abstr.*, **115** (1991) 255627v.
Εκτός της Γερμανίας και σε 11 κράτη της Ευρώπης δηλώθηκε ακόμη στα εξής: Καναδάς [CA Pat. Appl., CA 2 032 372 (1990)], Ιαπωνία [Jpn. Kokai Tokkyo Koho, JP Hei/2/402 869 (1990)], Αυστραλία [AU 68 367/90 (1990)], Βραζιλία [BR PI 90 06 444 (1990)], Ταϊβάν [TW 79/109 499 (1990)], Ν.Κορέα [KO 90/20 528 (1990)]

- 3) G. Papadogianakis, B. Fell and H. Bahrmann
“Preparation of sulfonated tris(*p*-fluorophenyl)phosphines”
DE 9 016 585 U (1990), EP 0 489 330 B1 (1991) to **Hoechst AG**. *Chem. Abstr.*, **117** (1992) 131385m. Εκτός της Γερμανίας και 13 κράτη της Ευρώπης έχει δηλωθεί στις ΗΠΑ και Ιαπωνία.
- 4) R.A. Sheldon, L. Maat and G. Papadogianakis
“Process for preparing arylacetic acid and arylpropionic acid derivatives”
U.S. Patent 5 536 874 (1996) to **Hoechst Celanese Corp.**
Εκτός των ΗΠΑ έχει ακόμη δηλωθεί σύμφωνα με το Patent Cooperation Treaty που καλύπτει Ευρώπη και Ιαπωνία και World Patent, WO 9626177 (1996).
- 5) G.A. Verspui, G. Papadogianakis, R.A. Sheldon
“Polyketones production by polymerising a mixture of carbon monoxide and alkyleneically unsaturated hydrocarbon”
NL1007422 (1997) to **Delft University of Technology**

ΚΕΦΑΛΑΙΑ ΣΕ ΒΙΒΛΙΑ

- 1) G. Papadogianakis and R.A. Sheldon,
“Tenside Ligands” in “Aqueous-Phase Organometallic Catalysis: Concepts and Applications” edited by B.Cornils and W.A. Herrmann
Wiley-VCH, Weinheim, **1998**, pp.123-134.
- 2) R. A. Sheldon and G. Papadogianakis
“Oxidations” in “Aqueous-Phase Organometallic Catalysis: Concepts and Applications” edited by B.Cornils and W.A. Herrmann
Wiley-VCH, Weinheim, **1998**, pp.506-512.
- 3) G. Papadogianakis
“Tenside Ligands” in “Aqueous-Phase Organometallic Catalysis” edited by B.Cornils and W.A. Herrmann, Wiley-VCH, Weinheim, 2nd completely revised and enlarged edition, **2004**, pp.158-173.