In this issue

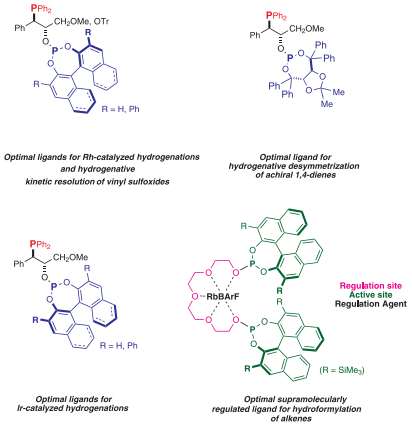
Nuria Llorente, Héctor Fernández-Pérez, José L. Núñez-Rico, Lucas Carreras, Alicia Martínez-Carrión, Ester Iniesta, Andrés Romero-Navarro, Alba Martínez-Bascuñana and Anton Vidal-Ferran

Efficient modular phosphorus-containing ligands for stereoselective catalysis

https://doi.org/10.1515/pac-2018-0805
Pure Appl. Chem. 2019; 91(1): 3–15

Conference paper: Highly modular enantiopure phosphine–phosphite ligands and supramolecularly regulated enantioselective phosphorus-based ligands as efficient components in transition metal-based enantioselective catalysts for key transformations for academic and/or industrial synthetic chemists.

Keywords: asymmetric catalysis; asymmetric hydrogenation; hydroformylation; ICPC-22; nucleophilic substitution reactions; phosphorus; supramolecular chemistry; transition-metal catalysis.



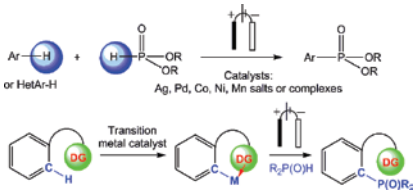
Yulia H. Budnikova

Opportunities and challenges for combining electro- and organometallic catalysis in C(sp^2)-H phosphonation

https://doi.org/10.1515/pac-2018-0904
Pure Appl. Chem. 2019; 91(1): 17–31

Conference paper: This mini-review includes selected new achievements in electrochemical synthesis of organophosphorus compounds with C–P bonds in catalytic metal-catalyzed processes. Combining electrochemistry with homogeneous catalysis gives many important opportunities for the synthesis of these derivatives.

Keywords: aromatic C–H bonds; catalysis; dialkyl H-phosphonate; diaryl phosphine oxide; electrosynthesis; ICPC-22; metal complex; phosphonation.



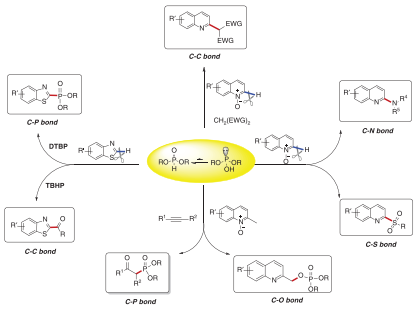
Mehwish Hussain Muhammad, Xiao-Lan Chen, Bing Yu, Ling-Bo Qu and Yu-Fen Zhao

Applications of *H*-phosphonates for C element bond formation

https://doi.org/10.1515/pac-2018-0906
Pure Appl. Chem. 2019; 91(1): 33–41

Conference paper: The recent advances of the application of *H*-phosphonates as a reactant or promoter for C–P, C–C, C–N, C–S, C–O bond formation are summarized using representative results from our lab.

Keywords: application; *H*-phosphonates; ICPC-22; organophosphorus; quinoline *N*-oxides.



Oleg I. Kolodiazhnyi

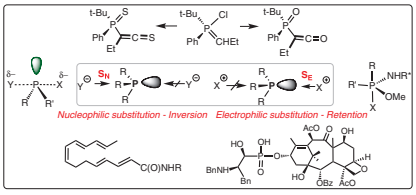
Stereochemistry of electrophilic and nucleophilic substitutions at phosphorus

https://doi.org/10.1515/pac-2018-0807
Pure Appl. Chem. 2019; 91(1): 43–57

Conference paper:

Stereochemistry and mechanisms of nucleophilic (SN) and electrophilic (SE) reactions at phosphorus have been analyzed, discussed and studied by experimental methods. SE(P) reactions proceed with the retention of absolute configuration, while the SN(P) reactions pass with the inversion or epimerization via the formation of P(V)-intermediate.

Keywords:
electrophilic substitution; halogenophilic reactions; ICPC-22; nucleophilic substitution; stereochemistry.



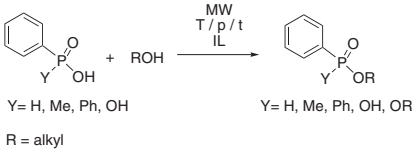
Nóra Zsuzsa Kiss and György Keglevich

Direct esterification of phosphinic and phosphonic acids enhanced by ionic liquid additives

https://doi.org/10.1515/pac-2018-1008
Pure Appl. Chem. 2019; 91(1): 59–65

Conference paper: The beneficial combination of microwave (MW) and ionic liquid (IL) additives was exploited in the direct esterification of a series of acyclic phosphinic and phosphonic acids.

Keywords: esterification; ICPC-22; ionic liquid; microwave irradiation; phosphinic derivatives; phosphonic derivatives.



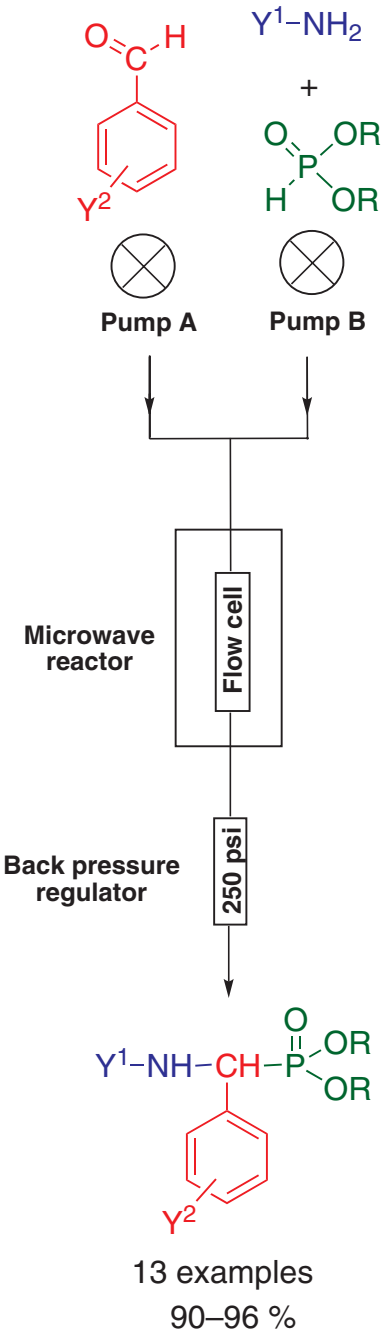
Erika Bálint, Ádám Tajti, Katalin Ladányi-Pára, Nóra Tóth, Béla Mátravölgyi and György Keglevich

Continuous flow synthesis of α-aryl-α-aminophosphonates

https://doi.org/10.1515/pac-2018-0923
Pure Appl. Chem. 2019; 91(1): 67–76

Conference paper: The continuous flow microwave-assisted synthesis of α-aryl-α-amino-phosphonates by the three-component Kabachnik-Fields reaction of primary amines, benzaldehyde derivatives and dialkyl phosphites is discussed.

Keywords: α-amino-phosphonates; continuous flow reactor; ICPC-22; Kabachnik-Fields reaction; microwave; Pudovik reaction.



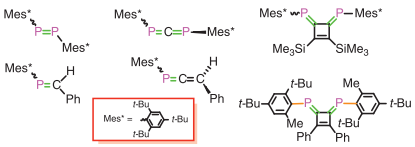
Masaaki Yoshifuji

Low-coordinate organophosphorus compounds: some stereochemical considerations

https://doi.org/10.1515/pac-2018-0912
Pure Appl. Chem. 2019; 91(1): 77–85

Conference paper: Some low-coordinate organophosphorus compounds protected with Mes* are dicussed in terms of stereochemistry including *E/Z* isomerization around P=P or P=C bond and *R/S* resolution of rotational isomers around crowded P–C bonds.

Keywords: *E/Z* isomerization; ICPC-22; low coordination; organophosphorus compounds; *R/S* resolution; stereochemistry.



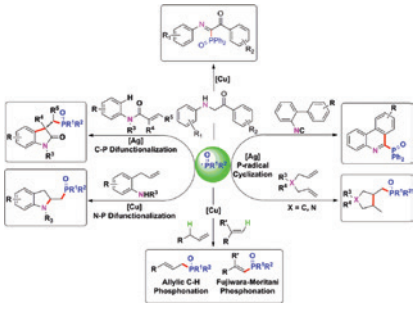
Wei Ren, Qiang Yang and Shang-Dong Yang

Applications of transition metal catalyzed *P*-radical for synthesis of organophosphorus compounds

https://doi.org/10.1515/pac-2018-0919
Pure Appl. Chem. 2019; 91(1): 87–94

Conference paper: The recent advance of the application of transition metal catalyzed *P*-radical promoted difunctionalization for synthesis of organophosphorus compounds were summarized by using representative results from our lab.

Keywords: difunctionalization; ICPC-22; organophosphorus compounds; *P*-radical; reactions; transition metal.



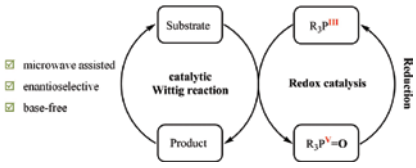
Lars Longwitz and Thomas Werner

Recent advances in catalytic Wittig-type reactions based on P(III)/P(V) redox cycling

https://doi.org/10.1515/pac-2018-0920
Pure Appl. Chem. 2019; 91(1): 95–102

Conference paper: Organophosphorus catalysis based on P(III)/P(V) redox cycling allows the implementation of catalytic Wittig(-type) reactions e.g. enantioselective and base-free catalytic Wittig reactions.

Keywords: ICPC-22; olefination; organic chemistry; organocatalysis; Wittig reaction.



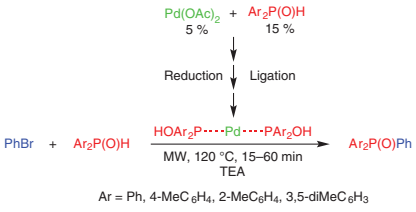
Réka Henyecz, Zoltán Mucsi and György Keglevich

Palladium-catalyzed microwave-assisted Hirao reaction utilizing the excess of the diarylphosphine oxide reagent as the P-ligand; a study on the activity and formation of the "PdP_2" catalyst

https://doi.org/10.1515/pac-2018-1004
Pure Appl. Chem. 2019; 91(1): 121–134

Conference paper: The palladium-catalyzed Hirao reaction of bromobenzene and diarylphosphine oxides was studied in the absence of added P-ligands both experimentally and theoretically. The formation of the "PdP_2" catalyst was evaluated and its activity was interpreted.

Keywords: *ab initio* calculations; cross-coupling; ICPC-22; microwave heating; P-ligands; palladium; reaction mechanisms.



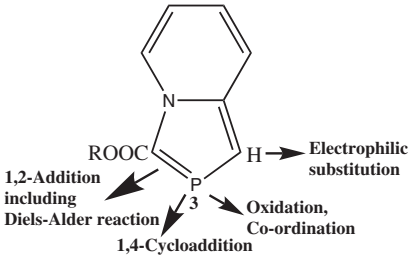
Nivedita Sharma and Raj K. Bansal

Synthesis of a variety of organophosphorus compounds using 2-phosphaindolizines as precursors

https://doi.org/10.1515/pac-2018-0915
Pure Appl. Chem. 2019; 91(1): 135–144

Conference paper:
2-Phosphaindolizines obtainable from two synthetic methods could be used as precursors for preparing a variety of organophosphorus compounds through 1,2-additions across the >C=P– functionality, electrophilic substitution and co-ordination to metalcarbonyls.

Keywords:
1,3-azaphospholo [5,1-*a*]pyridines; 2-phosphaindolizines; bromination; Diels-Alder reaction; ICPC-22; η^1-P coordination compounds.



György Keglevich, Nóra Zsuzsa Kiss, Réka Henyecz and Zoltán Mucsi

Microwave irradiation and catalysis in organophosphorus reactions

https://doi.org/10.1515/pac-2018-0501
Pure Appl. Chem. 2019; 91(1): 145–157

Conference paper:
The role of catalysts in different MW-assisted reactions is discussed. The MW-assisted esterification of phosphinic acids and the Hirao reaction are surveyed in detail.

Keywords: Arbuzov reaction; catalysts; Hirao reaction; ICPC-22; Kabachnik–Fields reaction; microwave assistance; phosphinates.