Asymmetric Synthesis in Organophosphorus Chemistry: Synthetic Methods, Catalysis, and Applications

Oleg I. Kolodiazhnyi

DESCRIPTION

Authored by one of the leading experts in the field, this is the only comprehensive overview of chiral organophosphorus compounds, from asymmetric synthesis to catalysis and pharmacological applications.

As such, this unique reference covers the chemical background as well as spectroscopical analysis of phosphorus compounds, and thoroughly describes all the various synthetic strategies for these substances. Metal-, organo- and biocatalyzed reactions for the introduction of phosphorus are explained as are asymmetric oxidation and reduction methods for the preparation of all possible oxidation states of phosphorus. The text also includes industrial applications for these compounds.

Of particular interest to chemists working in the field of asymmetric synthesis, as well as to the pharmaceutical industry due to the increasing number of phosphorous-containing drugs.

ABOUT THE AUTHOR

Professor Oleg I. Kolodiazhnyi is head of the Department of Physiologically Active Phosphorus Compounds, Institute of Bioorganic Chemistry and Petrochemistry, National Academy of Sciences of Ukraine (NASU) since 1990. He obtained his Ph.D. and Doctor of Sciences degree from the Kiev Institute of Organic Chemistry, NASU. In 1995 he became Professor of Chemistry and was elected as member-correspondence of the National Academy of Sciences of Ukraine in 2013.
His current interest is chemistry of organophosphorus compounds, highly reactive phosphorus compounds and reagents. Over the last years, Kolodiazhnyi has been studying the asymmetric synthesis, stereochemistry of organophosphorus compounds and synthesis of biologically active compounds. He is author of &gt;500 publications and 28 patents, including three monographs, a number of reviews and chapters. He is currently member of the editorial boards of the "Journal of Phosphorus, Sulfur, Silicon and Related Elements (USA)" and member of editorial board of "Russian Journal of General Chemistry" (St. Petersburg). In 2014 he was awarded by State Premium of Ukraine in Science and Technology for eminent achievements in Organophosphorus chemistry. He is also prize-winner of the Kiprianov Premium on Organic Chemistry of Ukrainian Academy of Science and numerous other scientific awards.

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