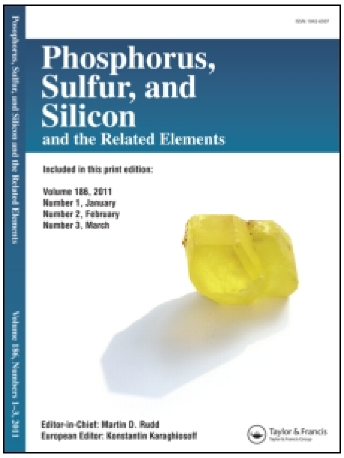

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^{13}C, ^{31}P and ^{1}H NMR Investigations of Rh(I)-(2S,4S)-2,4-Bis(Diphenylphosphino)Pentane (Bdpp)-Diene Complexes

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^{13}C, ^{31}P AND ^{1}H NMR INVESTIGATIONS OF Rh(I)-(2S,4S)-2,4-BIS(DIPHENYLPHOSPHINO)PENTANE (BDPP)-DIENE COMPLEXES

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Although transition metal-phosphine-diene complexes can be conveniently studied by ^{31}P NMR occationally other nuclei such as ^{13}C or ^{1}H can provide more valuable information. Here we report on the liquid state stereostructure and conformational behaviour of [Rh(NBD)(S,S-BDPP)]$^+$, [Rh(COD)(S,S-BDPP)]$^+$ and [Rh(NBD)(S,S-BDPP)Cl] complexes. The stereochemistry of these precursors is of interest from the point of homogenous catalytic reactions such as hydrogenation. In the square-planar cationic complexes the phosphine chelate show C_2 symmetry whereas in the spectra of the five-coordinated neutral species this symmetry is lost when recorded in aromatic solvents (C_6D_6, toluene-d_6) or at lower temperature (^{31}P, CD_2Cl_2, 195 K). At the same time the ^{1}H and ^{13}C spectra indicate pairwise non-identity of the diene atoms.

Our measurement underline the critical role of the phenyl rings in the observed enantioselectivity of such chiral phosphines.