

Supplementary Information

Synthesis of Bis(trithio)phosphines by Oxidative Transfer of Phosphorus(I)

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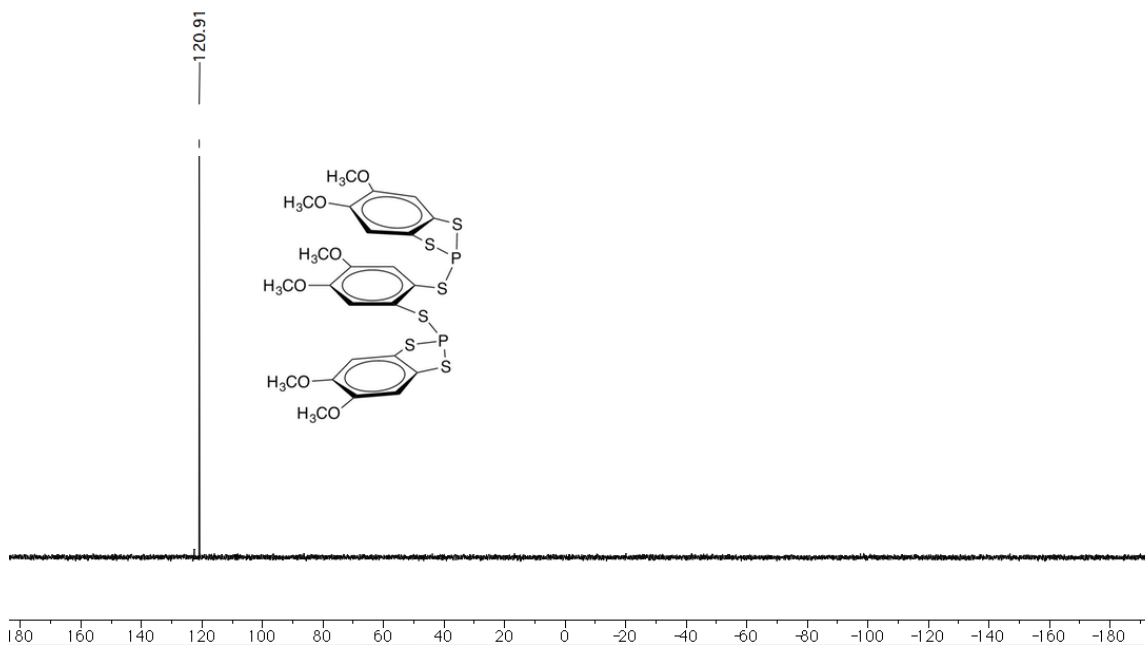


Fig 1. ^{31}P $\{^1\text{H}\}$ NMR of **2**

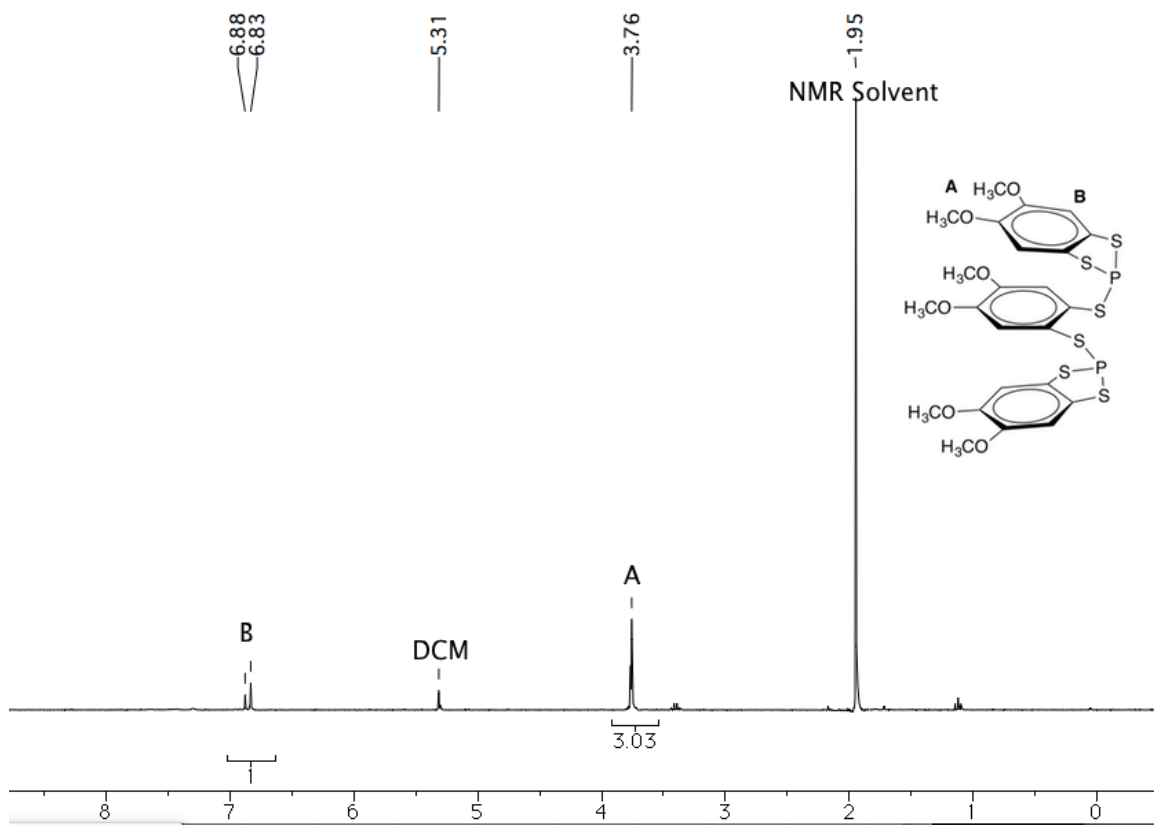


Fig. 2 ^1H NMR of **2**

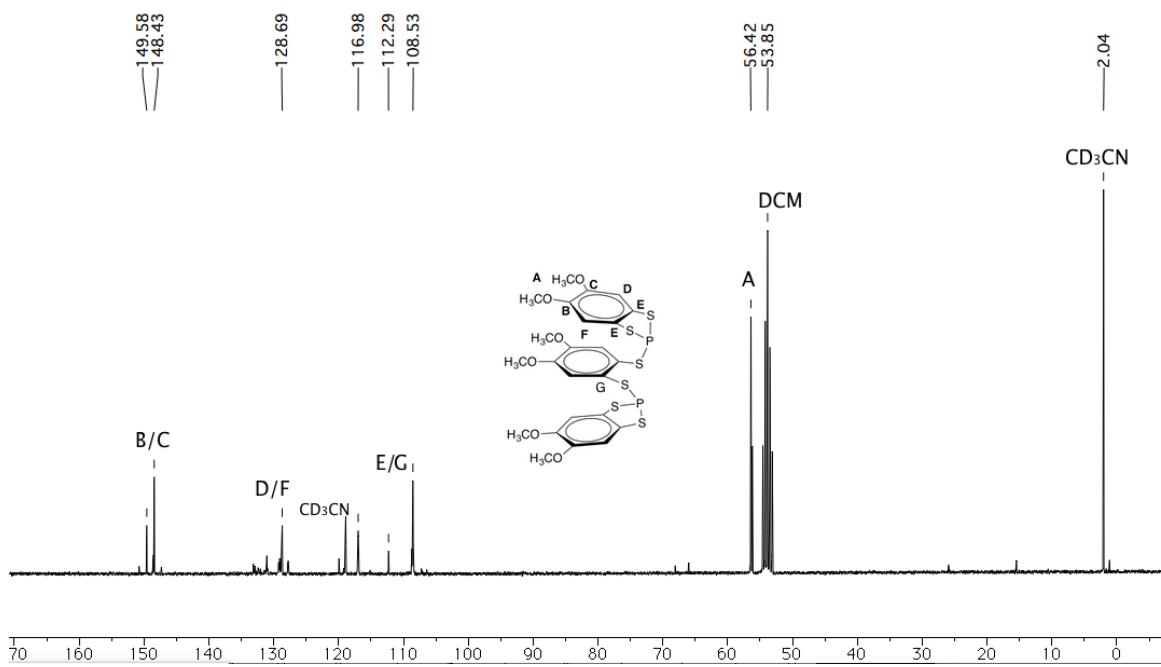


Fig. 3 ^{13}C $\{^1\text{H}\}$ NMR of 2

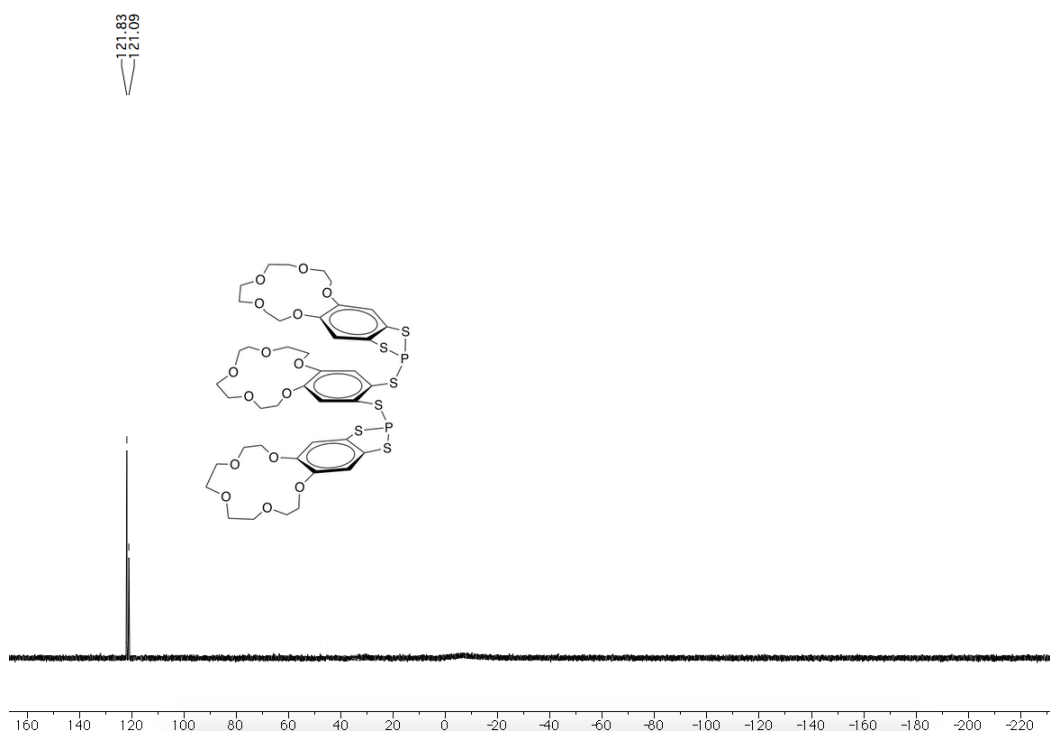


Fig. 4 ^{31}P $\{^1\text{H}\}$ NMR of 3

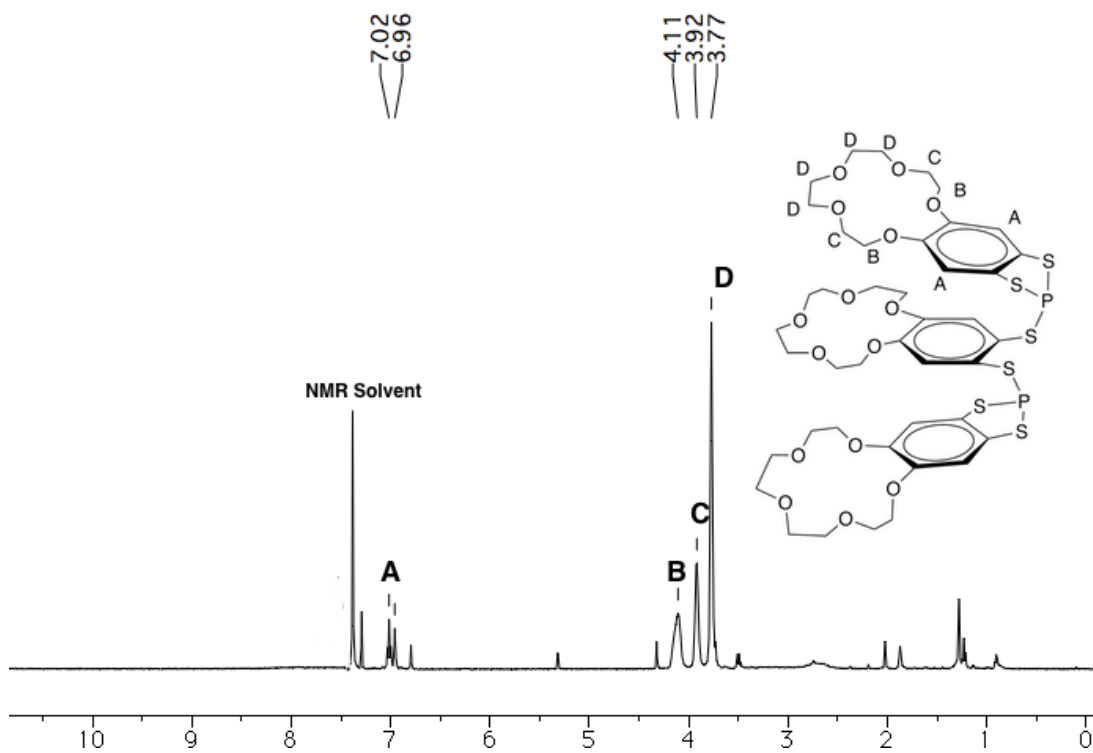


Fig. 5 ^1H NMR of 3

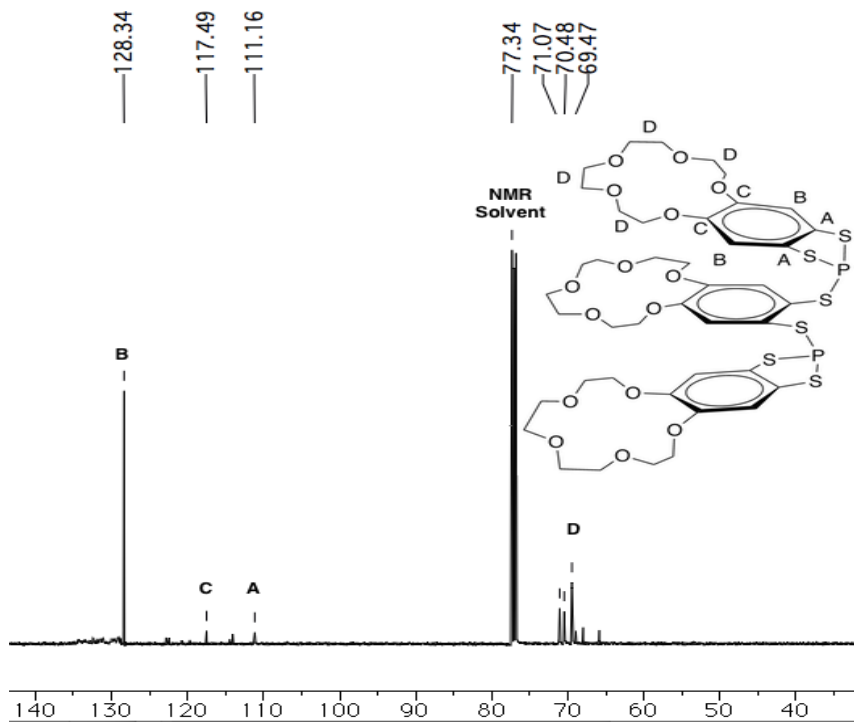


Fig. 6 ^{13}C $\{^1\text{H}\}$ NMR of 3

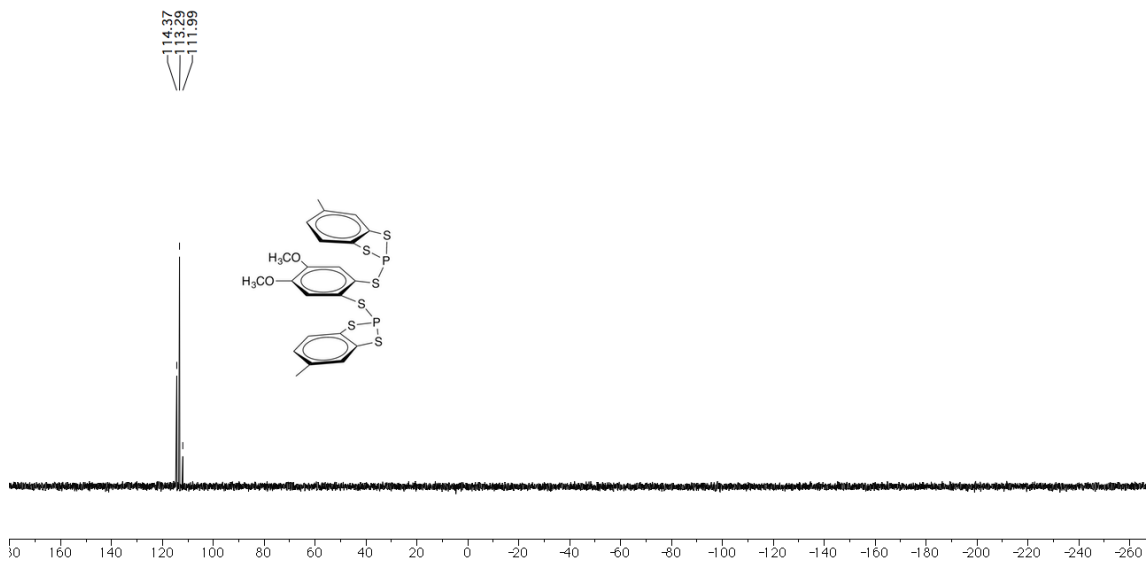


Fig. 7 ³¹P {¹H} NMR of 4

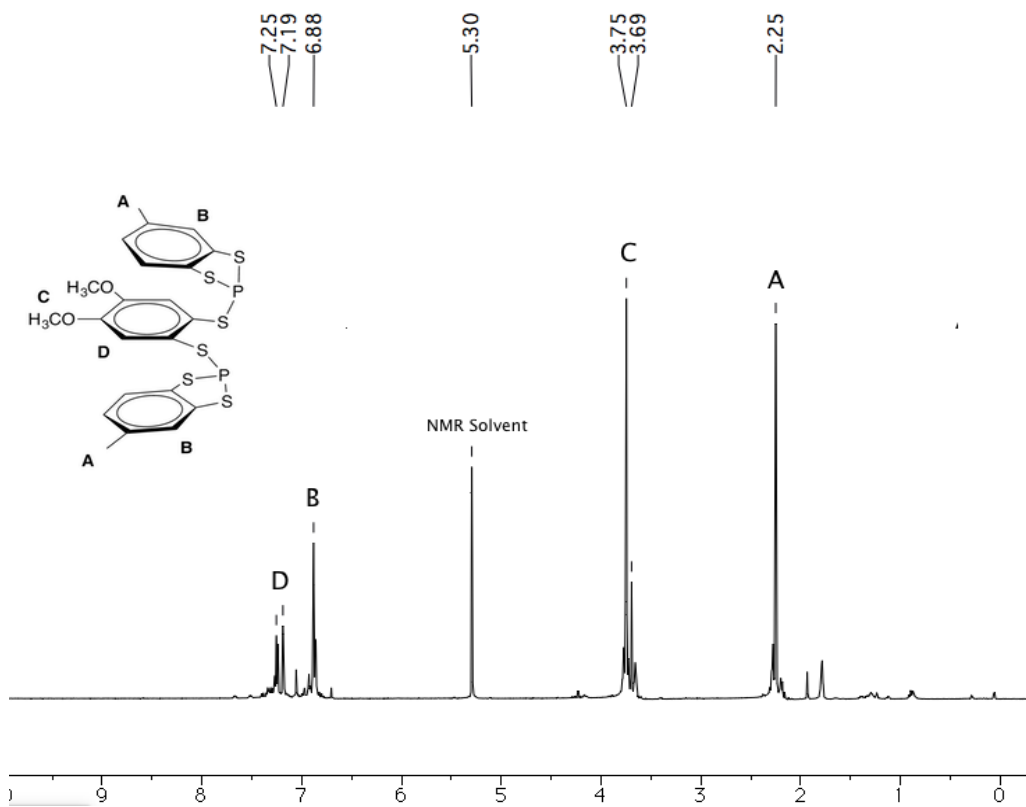


Fig. 8 ¹H NMR of 4

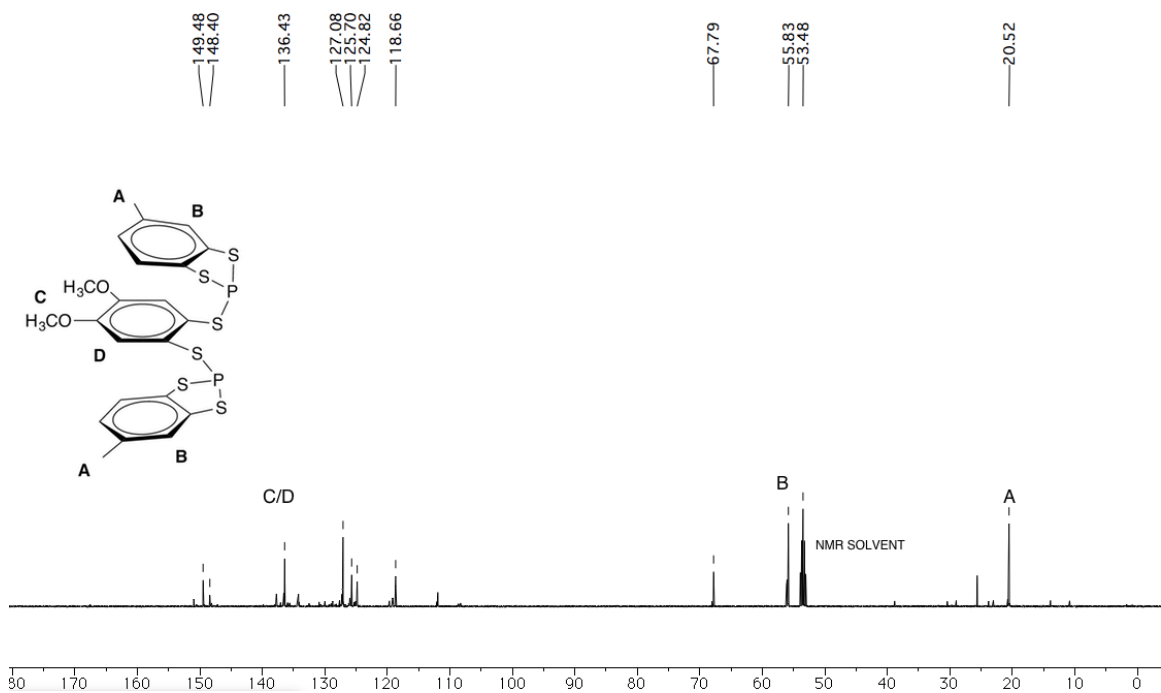


Fig. 9 ^{13}C $\{^1\text{H}\}$ NMR of 4

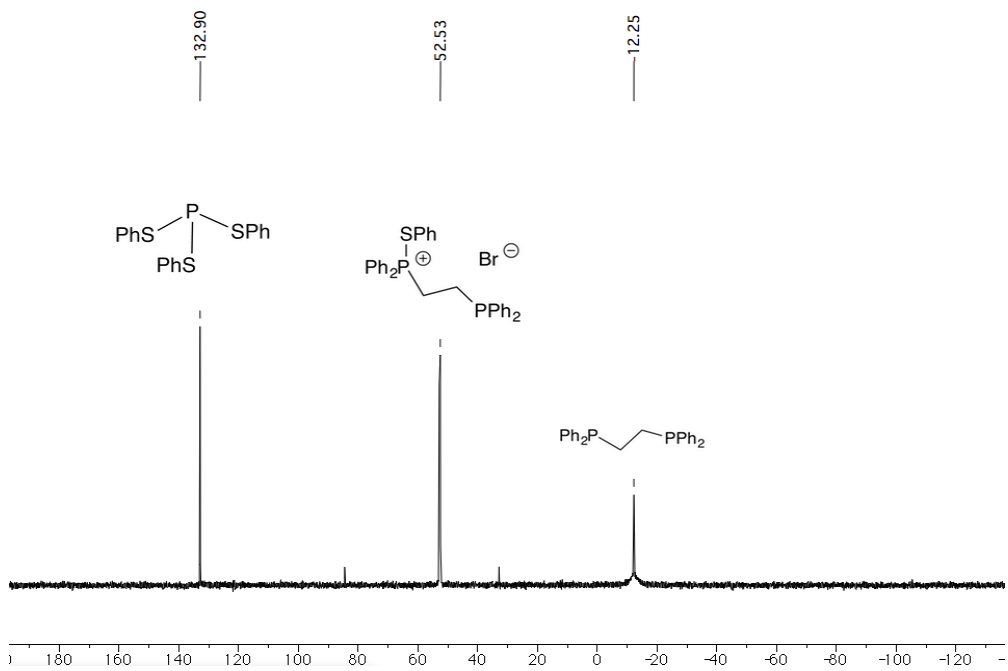


Fig. 10 ^{31}P $\{^1\text{H}\}$ NMR of the 1:2 reaction of $[\text{P}^{\text{I}}\text{dppe}][\text{Br}]$ and phenyl disulfide

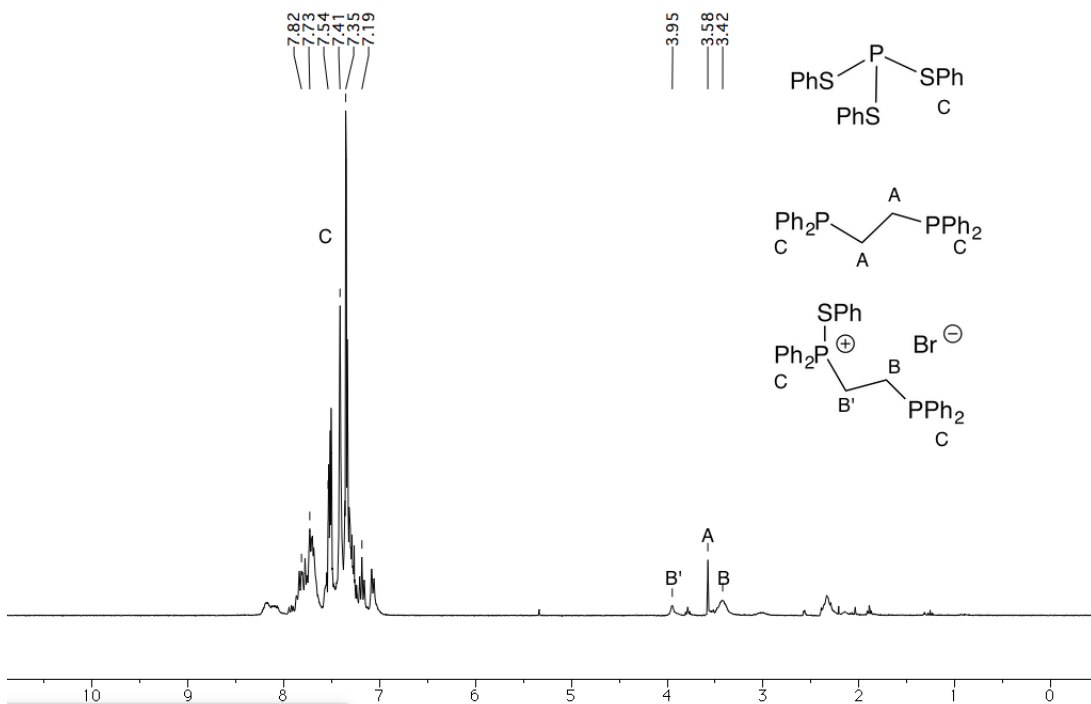


Fig. 11 1H NMR of the 1:2 reaction of $[P^I dppe][Br]$ and phenyl disulfide

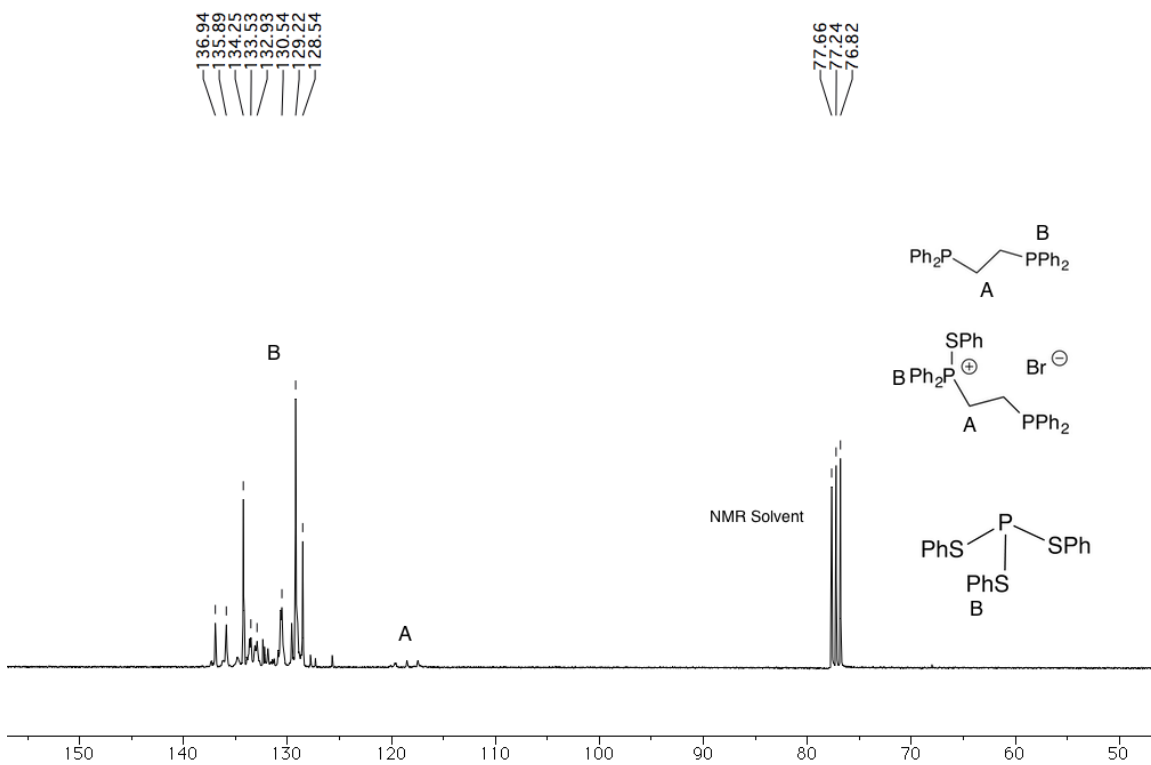


Fig. 12 ^{13}C $\{^1H\}$ NMR of the 1:2 reaction of $[P^I dppe][Br]$ and phenyl disulfide

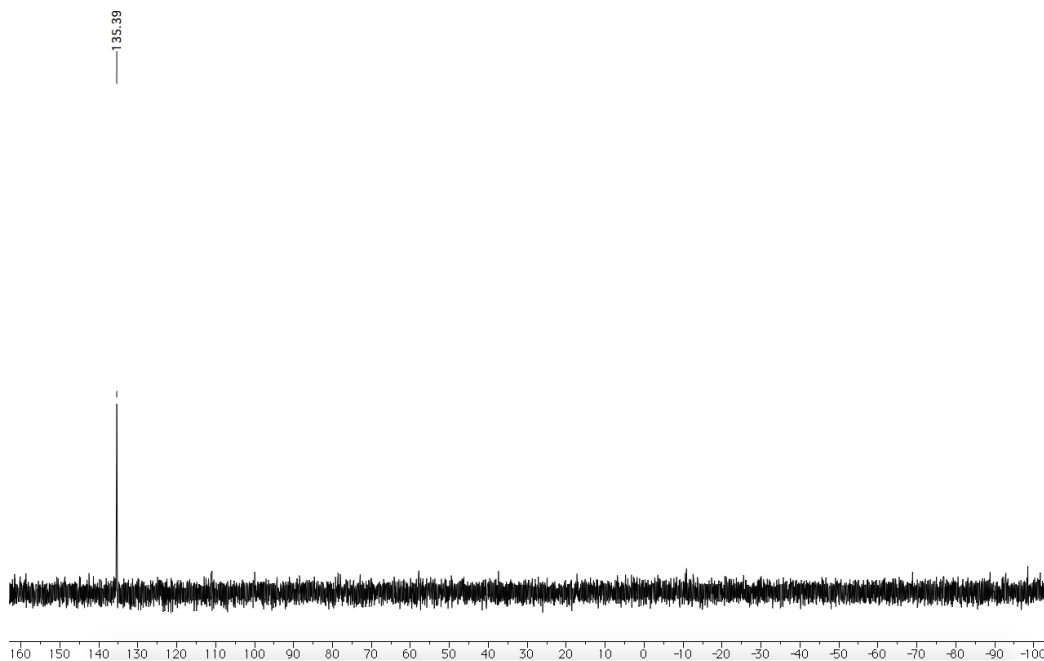


Fig. 13 $^{31}\text{P}\{^1\text{H}\}$ NMR of $\text{P}(\text{SPh})_3$

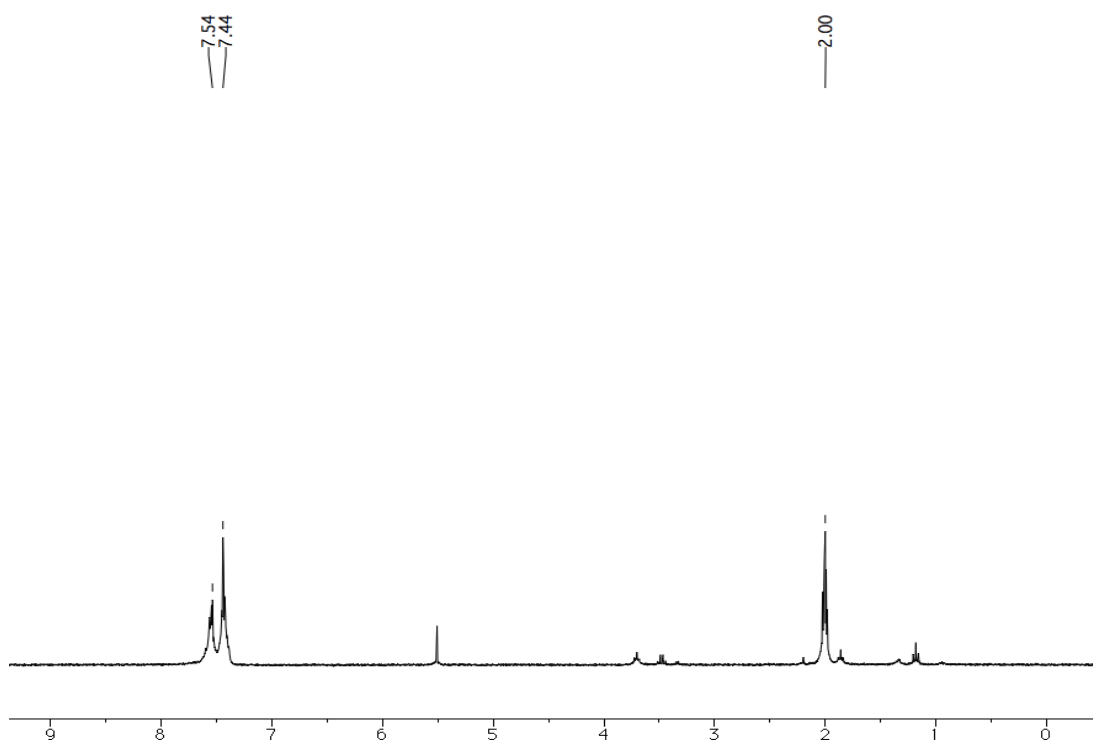


Fig. 14 ^1H NMR of $\text{P}(\text{SPh})_3$ in CD_3CN (residual peak at 2 ppm) trace amounts of solvents DCM (5.5 ppm), Et_2O (1.12, 3.38 ppm), and THF (1.79, 3.62 ppm) remain.

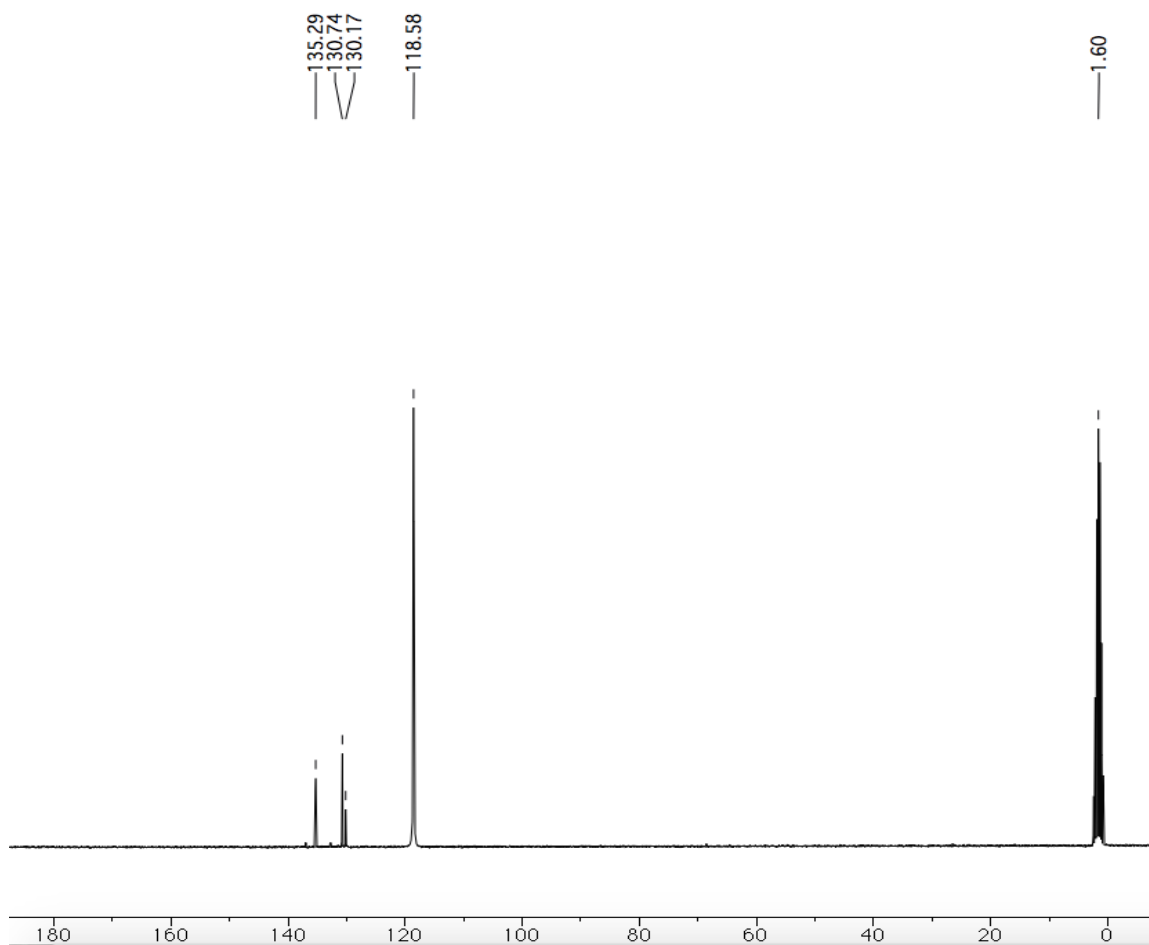


Fig. 15 ^{13}C $\{^1\text{H}\}$ NMR of $\text{P}(\text{SPh})_3$ in CD_3CN (residual peaks 1.6ppm, 118.58 ppm)