

P-P bond activation in phosphorus rich ferrocenophanes

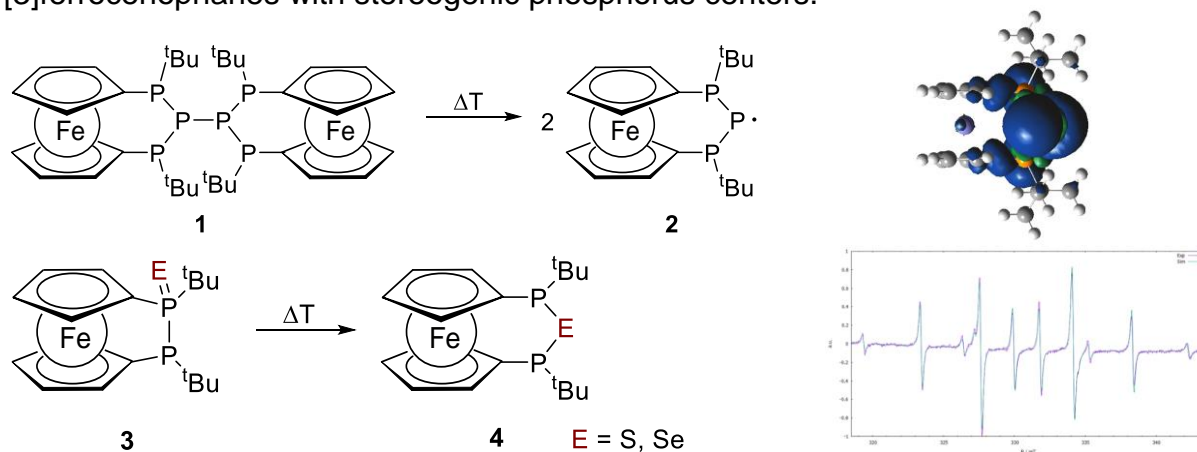
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Phosphorus bridged [n]ferrocenophanes are attractive building blocks with implications for ferrocenylene based polymers containing phosphorus in the backbone or asymmetric catalysis.^[1,2] To this end we obtained a variety of functional triphospha [3]ferrocenophanes in preliminary work.^[3,4] Beside the preparation of functionalized triphospha [3]ferrocenophanes, we were able to combine several such systems to phosphorus-rich bisferrocenophanes.^[5]

These phosphorus-rich ferrocenophanes are suitable model systems for achieving thermal or electrochemical activation of P-P bonds. Bisferrocenophane **1** can be thermally activated under homolysis of the central P-P bond to generate the phosphorus centered radical **2**. Regarding P-P bond activation particular attention should also be paid to diphospha [2]ferrocenophanes, since the increased ring strain also leads to an increased reactivity of the P-P bond. Thus the primary phosphanylphosphoranes **3** show thermal conversion into the thermodynamically preferred chalcogenophosphinous anhydrides **4**, which constitute novel diphospha [3]ferrocenophanes with stereogenic phosphorus centers.^[6]



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