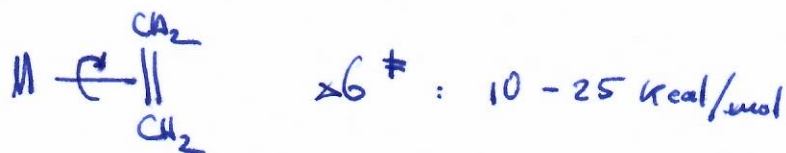


dynamics:

lecture # 9



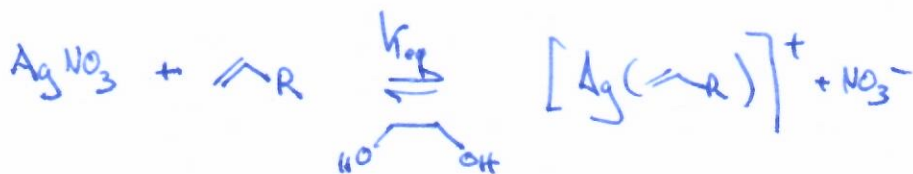
thermodynamic stabilities

Inorg. Chem. 1986, 25, 345



'acac'

R-CH=CH ₂					...				
K _{eq}	1	0.078	0.004	0.002		0.17	0.32	1.59	59

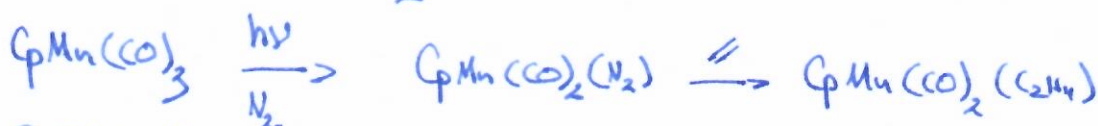


trans-Cyclooctene

R-CH=CH ₂						...				
K _{eq}	22	4.3	5.4	1.4	2.7	0.1	3.6	7.3	>1000	62

Synthesis:

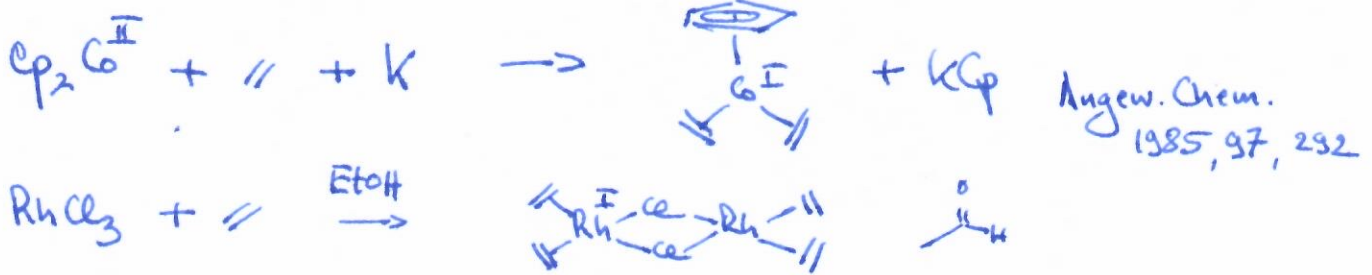
1) Ligand substitution



2) Reduction of metal salts



air stable Ni⁰ precursor: Nature Cat. 2020, 3, 6



Reactions

1) ligand substitutions

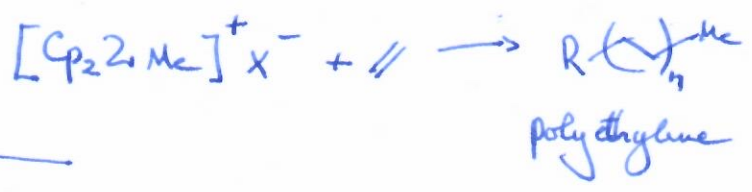


2) nucleophilic addition: very different from usual reactivity



3) insertions

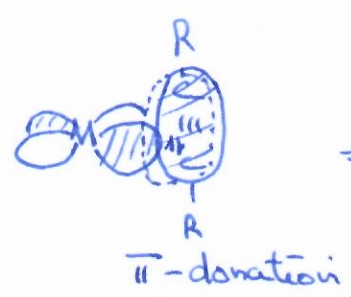
e.g. polymerization



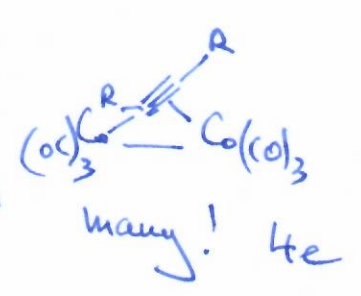
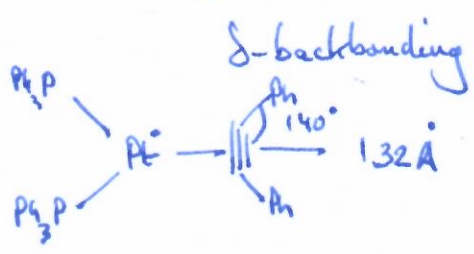
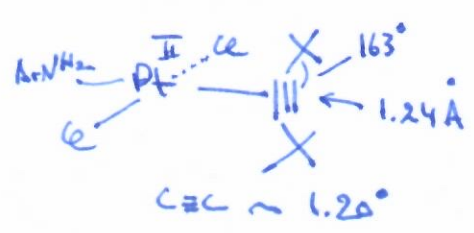
alkynes



but

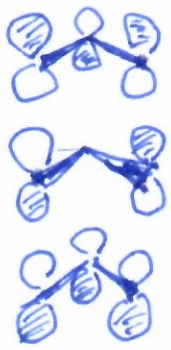
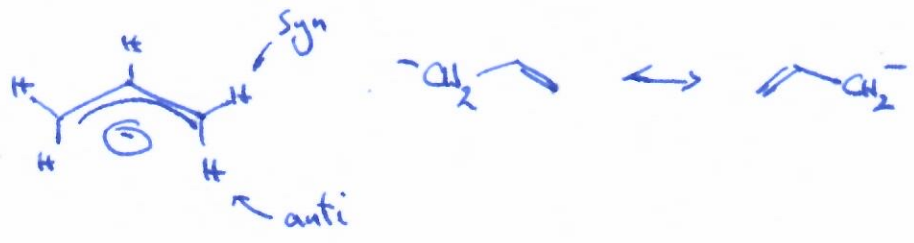


alkynes can donate $4e^-$



other π -ligands

'3-allyl'



— π -acceptor

~~—~~ π -donor

~~—~~ σ -donor