# CHEM - 478

# **Organic synthesis**



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#### saturated hydrocarbons

Heterogeneous catalysts such as Pd or Pt on activated carbon

Homogeneous catalysts *e.g.* the Wilkinson's catalyst chlorotris(triphenylphosphine)rhodium(I), RhCl(Ph<sub>3</sub>P)<sub>3</sub>



### saturated hydrocarbons

$$R^{1} \xrightarrow{R^{2}} \frac{FGI}{R^{2}} + R^{2}CHO$$

$$R^{1} \xrightarrow{R^{2}} \frac{FGI}{R^{2}} \xrightarrow{R^{2}} R^{2} \xrightarrow{R^{2}} R^{2}CHC$$



## saturated hydrocarbons

$$P_h \longrightarrow P_h \longrightarrow P_h$$

$$\Longrightarrow$$
 Ph $^+$ PPh $_3$  + CHO

#### Synthesis:

PhCH<sub>2</sub>Br 
$$\xrightarrow{\text{1. PPh}_3}$$
 Ph $\xrightarrow{\text{PPh}_3}$   $\xrightarrow{\text{n-BuCHO}}$  Ph $\xrightarrow{\text{Ph}}$  TM



# saturated hydrocarbons

PhBr 
$$\frac{1. \text{ Mg}, \text{ Et}_2\text{O}}{2. } \xrightarrow{\text{OH}} \frac{1. \text{ H}_3\text{PO}_4}{2. \text{ H}_2 \cdot \text{Pd} \cdot \text{C}} \xrightarrow{\text{TM}}$$



# saturated hydrocarbons

#### **Exercise**

Attempt all possible disconnections of given molecules. Write the synthesis from the best route.

$$\alpha$$