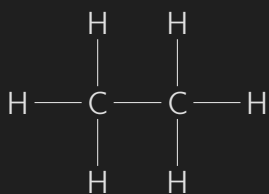


# Organic Chemistry II

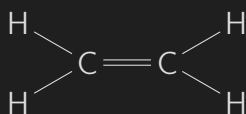
<b>Chapter 14: Alkenes</b>	<b>2</b>
<b>Alkenes</b>	2
Practice.....	2

# Chapter 14: Alkenes

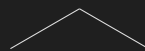
## Alkenes



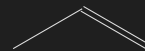
Saturated  
alkanes ethane



Unsaturated  
alkenes ethene



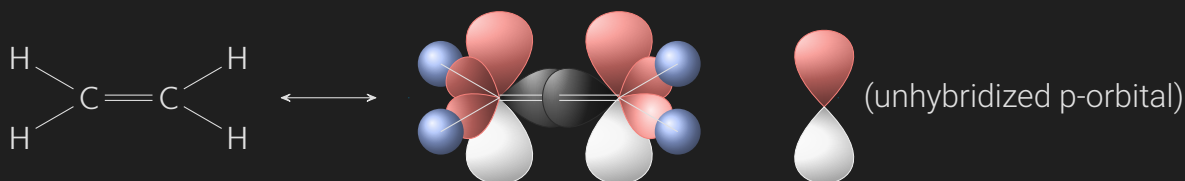
propane



propene

- ▷ **Electronegativity:** negative charges on atoms with lower hybridization result in greater stability due to proximity (overlap) to positive nucleus. More s character results in greater stability.

- I.e.,  $sp$  (50% s) >  $sp^2$  (33% s) >  $sp^3$  (25% s)
- E.g., ethene has two carbons that are both  $sp^2$  due to one unhybridized p-orbital. This gives ethene a trigonal planar geometry.



## Practice

- **Hydrogen deficiency index (HDI):** the measure of degrees of unsaturation.
  - E.g., two degrees of unsaturation results in a HDI of 2.
  - Degrees of freedom help represent possible structures, indicating possible double bonds, triple bonds, rings, or various combinations of each.
  - Only helpful when molecular formula is known for certainty.
  - Formula:  $HDI = \frac{1}{2}(2C + 2 + N - H - X)$ 
    - X: halogen atoms.
-