CHEM 261 September 11, 2020

**Resonance Structures:** Different drawings of the same molecule made by moving electrons but not atoms

* Move the electrons, keeping the position of the atoms same
* Maintain inert gas configuration around each atom
* Avoid separation of charges
* Avoid like-charges on adjacent atoms
* Double headed arrow ( ) is used indicate resonance forms
* Fish Hook and double headed arrows are used to show electron movement



Double Headed Arrow

Show movement of 2e-

Fish Hook Arrow

Show movement of 1e-

**Examples**

1. **Hydrogen gas, H2**

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**NB:** In the bad representations, non- inert gas configuration and extra charges have been created

1. **Sodium Nitrite Anion, NaNO2**

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1. **Sodium Nitrate, NaNO3**

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**NB: No inert gas configuration disrupted**

**No extra charge created**

1. **CH4 Methane –** below are **POOR** resonance structures – additional charges or unshared electrons (not inert gas configuration)

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but methyl radical – can be

reactive intermediate in principle





but methyl anion – can be a reactive intermediate in principle

but methyl cation – can be a reactive intermediate in principle

**5.** **1,2-Dichlorobenzene**



OR

