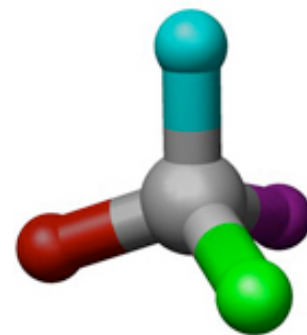


Chemistry 742 - Physical Organic II

Term Paper - Spring 2014

Due: April 30, 2014



Term papers should be on a topic not discussed in class, or go deeper into more detail than what was discussed in class. The idea is to learn something new about physical organic chemistry. Your topic can be on an applied topic but you should discuss in detail issues of structure, mechanism and reactivity that pertains to physical organic chemistry. The papers will be compiled, copied, and distributed to the class for everyone to read and have as a resource, so you should make some effort to produce a good “camera ready” report.

The following are potential topics for your paper. If you are interested in writing on a topic that is not listed here, that is fine. Please check with me to see if it is suitable.

Potential Topics

Carbene Chemistry

Carbene structures
Applications of Carbenes in Synthesis
N-Heterocyclic Carbenes - use in catalysis

Radical Chemistry

Radical reactions in synthesis
Different methods for generating radicals
Low temperature radical chemistry
Stereoselectivity in radical reactions
Non-tin based hydride reagents

MO Theory

Applications of Hückel MO Theory
Detailed look at Frontier MO Theory
Calculations of MO's
Perturbation Theory

Electrocyclic reactions

Diels Alder Reactions in synthesis
Reverse electron demand DA reactions
Cope rearrangements
Higher order cycloaddition
Transition metal catalyzed cycloaddition

Aromatic chemistry

Möbius aromaticity
Aromaticity in large ring systems
Aromatic substitution reactions
Single electron reduction/oxidation of aromatic compounds
Benzyne reactions