3.091 Solid State Chemistry: Week 14

Logan Pachulski

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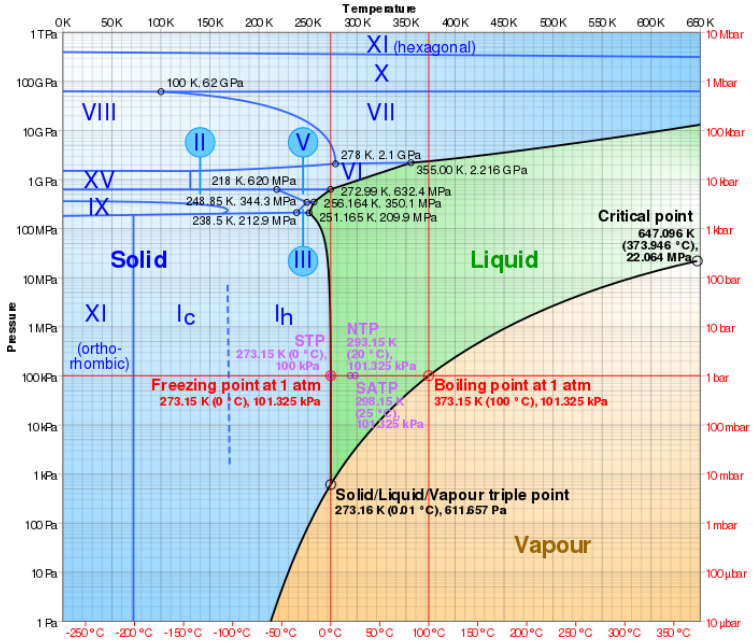
Progress Update

Over the past week I have been introduced to:

1. Phase diagrams and cooling graphs.
2. Organic compounds.

Phase diagrams

Consider the phase diagram of water (H_2O)



If once considers a constant pressure, there exists a remarkable truth that can be found from the phase rule that

$$\text{degrees of freedom} = \#\,\text{components} - \#\,\text{phases} + 1$$

A zero degree of freedom is present at the lines between phases, and means that the temperature of a sample cannot change until the entire sample has made the phase change.

Organic compounds

Organic compounds are those compounds containing a carbon chain of any sort; they fall into *homologous series*, which are compounds that

1. Share a motif; a trait like linear or cyclic
2. Share a functional group, like a alcohol, ketone, aromatic ring, etc.

Compounds within a homologous series tend to share features within the series; alcohols have high flammability, etc.

Functional groups

A long list of functional groups exist, along with descriptions of them in the notes:

1. Alkanes
2. Alkenes
3. Alkynes
4. Alchohol
5. Ether
6. Ketone
7. etc...