2009 Spring **06. 03. 2009**

Advanced Physical Metallurgy
"Amorphous Materials"

Class # Name

1. GFA parameters can give us useful guideline for BMG-forming alloy design.

Define and compare ΔT_x and K parameter. (3 points)

2. Fill in the blank. (4 points)

Glass formation is a (competing) process between liquid phases and the most (stable) crystalline phases. Both the liquid phase (stability) and the resistance to the (formation) of competing crystalline phases have to be considered when accessing the (GFA) for amorphous materials. The relative liquid phase stability for glass-forming liquids can be indicated by (1/2)(Tg+Tl) that coincidentally is the (average position) of the TTT curve along the temperature axis. The relative resistance to the formation of the competing crystalline phases can be reflected by the quantity of (Tx) because it is an indication of the (location) of the TTT curve along the time scale. The (gamma) parameter derived based on the characteristic features of the TTT curves, can effectively reflect the relative GFA for (various) glass-forming materials.

harmonious/ Tx/ role/ location/ gamma/ unstable/ instability/ ΔTx/ formation/ destabilization/ epsilon/ various/ ternary/ stable/ average position/ width/ BMG/ Tg/ competing/ stability/ intermetallic/ GFA

3. Explain the physical meaning of epsilon parameter with your own words. (3 points)

*** Suggestion for class or request for personal conversation:**

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