2009 Spring **03. 09. 2009**

Advanced Physical Metallurgy
"Amorphous Materials"

Class # Name

1. Explain the difference between crystal transition and glass transition using schematic diagram for specific volume vs temperature.

2. What kind of unique properties were reported in amorphous materials?

3. ( ) are solids that exhibit symmetries long thought forbidden in nature. Since their discovery in a rapidly solidified Al-Mn alloy in 1984, the central issue in the field has been understand why they form. Are they energetically stable compounds or stabilized by entropy? In recent years, major strides have been made in determining atomic structure, largely by direct imaging using advanced electron microscopy. One system is now known to be energetically stabilized, and ( ) are therefore firmly established as a new physical state of matter. They represent a unique packing of atomic clusters some tens of atoms in size, which substantial localized fluctuations, referred to as phasons. Understanding phasons may in future allow their unique macroscopic properties to be tailored for useful materials application.

Prof. Eun Soo Park
Department of Materials Science and Engineering/Seoul National University