

Amorphous and Deeply Supercooled Water

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ABSTRACT

The discovery of a second form of amorphous ice in 1985 by Mishima et al. has coined the concept of "polyamorphism". Since then there has been a lot of scientific discourse about the question whether the amorphous forms of ice are thermodynamically continuously connected to deeply supercooled liquids, or whether amorphous ices need to be regarded as nanocrystalline materials. In other words the vividly debated question is whether a glass-to-liquid transition links "polyamorphism" and "liquid polymorphism". After reviewing the early literature regarding investigations about the glass-to-liquid transition in differently prepared amorphous ices, which were mainly done at ambient pressure for the low-density amorphous ice forms, I present our recent work on the glass-to-liquid transition on high-density amorphous ices and on the extension of these measurements to high pressure conditions.