

EINLADUNG

zum Vortrag

von

Doz. Dr. Thomas Loerting

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über

Mysterious Water

am

Dienstag, 20. Oktober 2009, um 17 Uhr

Ort: Lise-Meitner Hörsaal, Fakultät für Physik, Universität Wien
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Abstract:

Water shows many anomalous properties, which includes its rich polymorphism and its “amorphous polymorphism”. In this talk I will introduce the sixteen crystalline and three amorphous phases of ice. I will discuss how we prepare them in the laboratory, what their molecular structure is, where they can be found in nature and how one amorphous and three crystalline phases were discovered in Innsbruck in the last few years. I will discuss our experiments on the highly disputed question whether or not the amorphous phases are glasses in the sense of vitrified liquids. If they are indeed glasses, which our research suggests, the consequence is that water can be separated into three liquids in the deeply supercooled state (of composition H_2O and densities of 0.92, 1.15 and 1.26 g/cm^3). In fact, we recently achieved to observe coexistence of two glassy water phases differing by 25% in density, which suggests that indeed a first order liquid-liquid phase transition may be at the origin of the thermodynamic anomalies of water in the supercooled region.

As an appetizer you can see how high-density amorphous ice converts into low-density amorphous ice in the picture sequence.



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Vorsitzender 2008/09: Univ.Prof. Dr. Werner Jakobetz, Institut für Theoretische Chemie, Universität Wien



Gegründet im Jahre 1869 von H. Hlasiwetz,
J. Loschmidt, J. Petzval und J. Stefan

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