

Nanoscale physics

The formation of a fractal nanostructure in simple molecular solids

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The thermal conductivity of molecular solid and exotic phases of solid alcohols (ethanol, 1-butanol and cyclohexanol) and 2-adamantane has been measured.¹⁻³ It is shown that the behavior of the temperature dependence of the thermal conductivity of metastable solids differs drastically from that in the amorphous state and the ordered phase. The effect of annealing and thermal conductivity relaxation has been detected in the orientationally ordered phase. It has found that thermal conductivity of metastable molecular solids obtained by crystallizing a deeply supercooled state exhibits a nontypical low-temperature dependence. This dependence is characteristic of fractal nanostructures.

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