

# Experimental study of metastable helium

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## Abstract

Helium, as an element with evident quantum character, is a good object for investigating the Andreev scenario of supersolidity. In 2011 a metastable state of solid  ${}^4\text{He}$  has been produced by locally lowering the density of the solid below the melting density using a focused acoustic wave pulse. An unexpected instability of the solid has been found about 4 bar below the melting line. Recently, we have investigated metastable state of superfluid helium by using the same technique. The superfluid is brought into a low density state, where it should normally be a gas. Then, the density of the liquid is measured down to a value at which cavitation occurs: a bubble appears. The corresponding pressure does not quite coincide with the one other groups had previously measured.