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Title: Pressure behavior of the sound velocity of liquid water at room temperature in the terahertz regime
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Abstract: The pressure evolution of the sound velocity in liquid water in the terahertz regime, c(infinity), between 0.05 and 0.88 GPa, at room temperature, has been investigated by synchrotron inelastic x-ray scattering in a diamond anvil cell. We confirm previous results showing that c(infinity) increases with density much less than the adiabatic sound velocity c(s), which is reasonably related to the known structural modifications in the hydrogen bond network. At variance with a previous study where an anomaly was found in the density evolution of c(infinity)-most likely due to the nonisothermal character of the study-the present work reveals a smooth behavior of c(infinity), which could provide a useful constraint to the current theories on liquid water.