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Temperature measurements in cavitation bubbles. MEROUANE HAMDI, Arts et Metiers ParisTech, OLIVIER COUTIER-DELGOSHA, Virginia Tech, MICHAEL BAUDOIN, University of Lille — The present work focuses on the analysis of the extreme conditions encountered during the process of collapse of cavitation bubbles. The objective is to characterize the temperature variations inside the vapor/gas bubble, and also in the surrounding liquid. The work is based on an experimental approach where temperature measurements are performed with a fast response cold wire thermometer. Specific thin cold wires obtained by Nickel metallic coating, whose resistance varies according to the local temperature, have been developed. They have been applied to configurations of single bubbles created by a travelling pressure wave. In most of the tests, the temperature peak magnitude measured at the end of the collapse is varying between 300 and 600C. It strongly depends on the shape, the diameter ant the distance of the bubble to the wall, and even more on the wire position during the bubble collapse.

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