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C2Or2C-04: Modified 3-omega conductivity technique to allow measurements of thermal conductivity in fluids

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An instrument based on a modification to the 3-omega thermal conductivity technique that allows precise measurement of thermal properties in fluids is presented. Existing hot-wire techniques have difficulty measuring thermal conductivity because of the effects of natural convection. This device's geometry restricts fluid motion to enable a direct high-precision measurement of a fluid's thermal conductivity. In addition, this device can also measure the specific heat of the fluid. The device is described and initial measurements from low temperature to room temperature and a range of pressures for several fluids are discussed.

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