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Some non-traditional approaches to thermal and thermodynamic measurements[1]

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Three non-traditional measurement methods for measurement of thermal and thermodynamic quantities are explored. Each method is not commonly used, has some astonishing advantages, and produces outstanding accuracy with little chance for error for several reasons. One reason in common is that for each method, only one quantity is measured. The methods include noise spectroscopy for the measurement of the elastic tensor of solids (and maybe other states of matter), third-harmonic measurements of thermal conductivity and specific heat, and impulse methods for obtaining the difficult-to-acquire "ZT" for thermoelectrics.

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