

Abstract Submitted  
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**Select Applications of Resonant Microwave Cavities** JIM ROBERTS, The University of North Texas, JAI DAHIYA, Southeast Missouri State University — Resonant circuits have been shown to be powerful as tools to measure both magnetic and electrical properties of matter. In this discussion we present the results of some of the applications of the resonant cavity as a probe to monitor both first order and second order phase change. One experiment that produced interesting data is the change in water as it changes from ice to water. Data that showed large variation near the transition temperature will be explored to help gain insight into hydrogen bonding and how this activity may be used to understand the formation of snowflakes in such various patterns. Perturbation equations for resonant cavities will be explored to help better understand the degree of accuracy measurements can be made. Special fields within the cavity will be discussed with some limitations proposed on how relative measurements can be useful, although absolute measurements may not be highly accurate. High Q resonant cavities are powerful tools.

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