

85. Title: Non-Destructive Measurement of Water Diffusion in Natural Cork Enclosures Using Terahertz Spectroscopy and Imaging

Author: Teti, AJ; Rodriguez, DE; Federici, JF; Brisson, C

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Abstract: Terahertz (THz) imaging enables non-destructive evaluation of many materials' internal structures which could not be probed by visual analysis alone. In this paper, we apply THz imaging to non-destructively probe and image the diffusion of water through natural cork samples. The temporal and spatial distribution of water is analyzed as it diffuses throughout the cork structure. An average diffusion coefficient comparable to previous work in the field is extracted from this analysis. Data is also presented to show that the diffusion coefficient is not uniform throughout the cork but changes dramatically due to the local structure and composition of the cork.