

CONSTRUCTION AND DEMONSTRATION OF A MICROWAVE THREE-WAVE MIXING SPECTROMETER AT THE MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

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Building off the previous works of Schnell, Patterson, and Pate, a new microwave three-wave mixing (M3WM) spectrometer was constructed and tested at the Missouri University of Science and Technology. This new instrument consists of a four-horn design, allowing traditional CP-FTMW experiments to be performed in addition to M3WM experiments. Within this presentation, the design, construction, and demonstration of the instrument's capabilities using 2-bromo-1,1,1,2-tetrafluoroethane will be discussed. Preliminary work on chirality detection and dipole forbidden transition analysis utilizing M3WM techniques will also briefly be presented.