

THE CUTTING EDGE OF MIRROR DESIGN - OPTIMIZING HEMISPHERICAL MIRRORS FOR FOURIER TRANSFORM MICROWAVE SPECTROSCOPY AND 3D PRINTED HYPERBOLIC MIRRORS

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Microwave spectroscopy has been looking at molecular structures for years but little has been done on mirror design. More and more interest has been growing for studying larger molecules to aid in the study of species of medical and biomedical interests. Here we will present our findings from experiments conducted on aluminum hemispherical mirrors of varying geometries with the same radius of curvature. These tests were conducted using hornless chirp pulse FTMW. The recently designed hornless chirp FTMW exceeds beyond the limitations of normal chirp pulse techniques, and this study seeks to optimize the collection of electromagnetic radiation for this new lower frequency region. Discussions on these results and recent applications of using 3D Printing to produce cost effective hyperbolic mirrors.