

3-D PRINTED SLIT NOZZLES FOR FOURIER TRANSFORM MICROWAVE SPECTROSCOPY

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3-D printing is a new technology whose applications are only beginning to be explored. In this report, we describe the application of 3-D printing to the facile design and construction of supersonic nozzles. The efficacy of a variety of designs is assessed by examining rotational spectra OCS and Ar-OCS using a Fourier transform microwave spectrometer with tandem cavity and chirped-pulse capabilities. This work focuses primarily on the use of slit nozzles but other designs have been tested as well. New nozzles can be created for \$0.50 or less each, and the ease and low cost should facilitate the optimization of nozzle performance (e.g., jet temperature or cluster size distribution) for the needs of any particular experiment.