

Abstract Submitted  
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**Chiral analysis and mixtures of cold, large molecules** SANDRA EIBENBERGER, GARRETT K. DRAYNA, KENNETH WANG, CHRISTIAN HALLAS, JOHN M. DOYLE, DAVID PATTERSON, Harvard University, Department of Physics, 17 Oxford Street, Cambridge, MA 02138 USA — We show new avenues for ultra-specific chemical analysis of buffer-gas cooled molecules via microwave spectroscopy. Buffer gas cooling provides a continuous, mixture compatible, solution compatible source, where the cold environment is controllable and the cooling process is separate from the production of the gas phase molecules [1,2]. We demonstrate the analysis of complex molecular mixtures by introducing a new liquid injection source with microwave spectroscopy in a cryogenic buffer gas environment. Chirality plays a fundamental role in the activity of many biological molecules and in broad classes of chemical reactions. Recently, we have demonstrated species and enantiomer sensitive microwave spectroscopic methods [3,4]. We seek to apply these methods not just to the analysis of chemical mixtures, but also to the manipulation of mixtures.

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