LASER SPECTROSCOPY FOR STABLE-ISOTOPE ANALYSIS OF ATMOSPHERIC MOLECULES

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Stable-isotope analysis provides valuable constraints on the global budgets of many important atmospheric species (*e.g.* CO_2, CH_4, CO, and N_2O). High-resolution laser spectroscopy promises to substantially reduce the laborious sample pretreatments often required by isotope-ratio mass spectrometry (IRMS), the incumbent state-of-the-art, as well as being capable of readily resolving isotopic species of nearly equal masses (*e.g.* CH_3D and $^{13}CH_4$). However, achieving sensitivity levels similar to that of IRMS has been a daunting task. This talk will provide a brief review of the progress and accomplishment to date in the application of laser spectroscopy to atmospheric stable-isotope analysis.