

CAVITY-ENHANCED DIRECT FREQUENCY COMB VELOCITY MODULATION SPECTROSCOPY

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We have developed a novel technique for broad bandwidth and high resolution survey spectroscopy of molecular ions. Cavity-enhanced direct frequency comb spectroscopy (CE-DFCS) provides broad bandwidth and high resolution by using individual comb lines as parallel detection channels. Here we combine CE-DFCS with velocity modulation spectroscopy to provide ion-specific detection with further enhanced sensitivity. The first application of this technique will map the electronic states of HfF^+ and ThF^+ , which are integral to the JILA electron electric dipole moment experiment.