THE STUDY OF RARE GAS-COINAGE METAL HALIDE INTERACTIONS: FOURIER TRANSFORM MICROWAVE SPECTROSCOPY OF Kr-CuX (X=F,Cl)

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The rotational spectra of KrCuX (X=F,Cl) have been observed using high resolution Fourier transform microwave spectroscopy. The molecules were made using laser-ablation of a copper rod in the presence of a halide precursor contained in krypton gas. These molecules were stabilized using a supersonic jet into the cavity of the spectrometer. The measurements allowed the determination of rotational constants and centrifugal distortion constants (B_0, D_0) to high precision. The different isotopomers that were observed permitted the determination of the Kr-Cu and Cu-X distances. The nuclear quadrupole coupling constants for Cu, Cl and ^{83}Kr were measured. The results have been supported by $ab\ initio$ calculations.