FOURIER TRANSFORM MICROWAVE SPECTRUM OF MgCCH ($X^2\Sigma^+$)

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The pure rotational spectrum of MgCCH ($X^2\Sigma^+$) in the frequency range of 9-40 GHz has been measured using Fourier transform microwave (FTMW) methods. The molecule was synthesized using discharge assisted laser ablation spectroscopy (DALAS) from a mixture of 0.1% acetylene in argon and the ablation of a magnesium rod. From these data, the hydrogen hyperfine parameters have been determined for the first time, as well as refinement of the rotational and spin-rotational constants, combined with previous millimeter-wave spectra measured by the Ziurys group.