

LABORATORY DETECTION OF IZnCH_3 (X^1A_1) : FURTHER EVIDENCE FOR ZINC INSERTION

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Millimeter-wave direct absorption techniques were used to record the pure rotational spectrum of IZnCH_3 (X^1A_1). This species was produced by the reaction of zinc vapor with ICH_3 in the presence of a DC discharge. Rotational transitions ranging from $J = 109 \rightarrow 108$ to $J = 122 \rightarrow 121$ were recorded for $^{64}\text{ZnCH}_3$ and $^{66}\text{ZnCH}_3$ in the frequency range of 250–290 GHz. The $K_a = 0-4$ components were measured for each transition, with the K-ladder structure and nuclear spin statistics indicative of a symmetric top. As with HZnCH_3 (X^1A_1), the detection of IZnCH_3 provides further evidence for a zinc insertion process.