FIRST SPECTROSCOPIC STUDIES AND DETECTION IN SgrB2 OF ^{13}C-DOUBLY SUBSTITUED ETHYL CYANIDE

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Ethyl cyanide (CH_3CH_2CN) is one of the most abundant complex organic molecules in the interstellar medium firstly detected in OMC-1 and Sgr B2 in 1977[a]. The vibrationally excited states are enough populated under ISM conditions and could be detected[b],[c]. Apart from the deuterated ones, all mono-substituted isotopologues of ethyl cyanide (^{13}C[d] and ^{15}N[e]) have been detected in the ISM. The detection of isotopologues in the ISM is important: it can give information about the formation process of complex organic molecules, and it is essential to clean the ISM spectra from the lines of known molecules in order to detect new ones. The ^{12}C/^{13}C ratio found in SgrB2: 20-30 suggests that the doubly ^{13}C could be present in the spectral line survey recently obtained with ALMA (EMoCA)[f], but no spectroscopic studies exist up to now. We measured and analyzed the spectra of the ^{13}C-doubly-substitued species up to 1 THz with the Lille solid-state based spectrometer. The spectroscopic results and and the detection of the doubly ^{13}C species in SgrB2 will be presented.

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