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Detection of a Disk Surrounding the Variably Accreting Young Star HBC722 XI YEK, MICHAEL DUNHAM, Fredonia, HECTOR ARCE, Yale, TYLER BOURKE, SKA, XUEPENG CHEN, PMO, JOEL GREEN, STScI, AGNES KOSPAL, Konkoly, STEVEN LONGMORE, Liverpool — We present new 233 GHz continuum observations collected using the Atacama Large Millimeter/Submillimeter Array (ALMA) on the newly discovered FU Orionis candidate HBC722. Previous millimeter continuum data from the Submillimeter Array (SMA) failed to detect this object, ruling out the possibility of the burst being triggered by gravitational instability in a massive disk. With these data we detect HBC722 at millimeter wavelengths for the first time with a 1.3 mm continuum detection at the expected position. We use this detection to calculate a circumstellar disk mass of 0.024 $M_\odot$. With a known stellar mass of approximately 0.5 $M_\odot$, our results imply that HBC722 has a disk-to-star mass ratio of approximately 5%, which is marginally too low for gravitational instabilities to serve as the burst triggering mechanism (such instabilities likely require disk-to-star mass ratios of 10% or higher). However, due to uncertainties in the ALMA continuum detection, future analysis using radiative transfer modeling is required to better determine the true mass of the HBC722 disk.

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