Sub-millimetre non-contaminated detection of the disc around TWA7 by ALMA

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Debris discs can be seen as the leftovers of giant planet formation and the possible nurseries of rocky planets. While M-type stars outnumber more massive stars we know very little about the time evolution of their circumstellar discs at ages older than ~10 Myr. Sub-millimetre observations are best to provide first order estimates of the available mass reservoir and thus better constrain the evolution of such discs. Here, we present ALMA Cycle 3 Band 7 observations of the debris disc around the M2 star TWA7, which had been postulated to harbour two spatially separated dust belts, based on unresolved far-infrared and sub-millimetre data.We show that most of the emission at wavelengths longer than ~300?m is in fact arising from a contaminant source, most likely a sub-mm galaxy, located at about 6.6 arcsec east of TWA7 (in 2016). Fortunately, the high resolution of our ALMA data allows us to disentangle the contaminant emission from that of the disc and report a significant detection of the disc in the sub-millimetre for the first time with a flux density of 2.1 ± 0.4 mJy at 870 ?m. With this detection, we show that the spectral energy distribution can be reproduced with a single dust belt.

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Stars: individual: TWA7

Stars: low-mass

Stellar matter