

Abstract Submitted  
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**Constraining Protoplanetary Disc Mass Using the GI Wiggle** JASON TERRY, CASSANDRA HALL, University of Georgia, CRISTIANO LONGARINI, GIUSEPPE LODATO, CLAUDIA TOCI, BENEDETTA VERONESI, Universit degli Studi di Milano, TERESA PANEQUE-CARREO, European Southern Observatory, CHRISTOPHE PINTE, Monash University — Exoplanets form in protoplanetary accretion discs. The total protoplanetary disc mass is the most fundamental parameter, since it sets the mass budget for planet formation. Although observations with the Atacama Large Millimeter/Submillimeter array (ALMA) have dramatically increased our understanding of these discs, total protoplanetary disc mass remains difficult to measure. If a disc is sufficiently massive ( 10% of the host star mass), it can excite gravitational instability (GI). Recently, it has been revealed that GI leaves kinematic imprints of its presence known as the “GI Wiggle.” In this work, we use numerical simulations to determine an approximately linear relationship between the amplitude of the wiggle and the host disc-to-star mass ratio, and show that measurements of the amplitude are possible with the spatial and spectral capabilities of ALMA. These measurements can therefore be used to constrain disc-to-star mass ratio.

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