

Abstract Submitted  
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**Magnetohydrodynamics and Binary Protostar Twins**<sup>1</sup> AARON HERRIDGE, SAMINA MASOOD<sup>2</sup>, University of Houston-Clear Lake — Binary star systems are an interesting case study in astrophysics. These stellar arrangements offer a continuously evolving multiple-body system for those who study astronomy to explore as a model of the fate and origin of the stars. However, binary star systems are themselves a diverse phenomenon. Types of binary star systems range from red giant / white dwarf systems, supermassive giant / neutron star systems, black hole / supermassive giant systems, protostar pair systems, and binary protostar twin systems. This study focuses on the case of binary protostar twins, a specific model of binary protostars that involves identical binary stars that formed as binary stars rather than being drawn together by gravitational capture. The existence of binary protostar twins will be weighed against the evidence, and the models of formation will be detailed, with a particular emphasis on hydrodynamics in accretion disk fragmentation. The research lends strength to the concept that magneto-hydrodynamics offer an explanation for the disk fragmentation that is modeled as a formation approach to binary protostar twins. Furthermore, this study examines several categories of binary protostar sets, including “identical twin” binary protostars, “fraternal twin” binary protostars, and “sibling” binary protostars.

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<sup>2</sup>Dr. Masood is the faculty mentor for this research work, and is also the second author. Her background in particle physics and astrophysics has been vital in this work.

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