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Shaping the Brown Dwarf Desert: Constraints from Turbulent PETER JUMPER, ROBERT FISHER, University of Massachusetts Dartmouth — The brown dwarf desert is the term used to describe the notable absence of brown dwarfs within about 5 AU from the central main- sequence star in binary brown dwarf-stellar systems. Previous work by other researchers has focused on a dynamical mechanism as the origin of the desert; namely, that brown dwarfs formed within the desert will migrate into their central stars on a relatively short timescale of approximately 10 Myr. We will develop models of turbulent giant molecular cloud cores, which subsequently form a binary system containing a brown dwarf. We will assume that the brown dwarfs form via gravitational fragmentation from the parent core, as supported by recent observations. A key goal of this current research is to understand the role of the brown dwarf formation process in shaping the brown dwarf desert.

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