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SDSS J1632+3505: A Possible Brown Dwarf Companion to a Nearby Main-Sequence Star GRETEL MERCADO, ADAM BURGASSER, CARL MELIS, Univ of California - San Diego — Brown dwarf companions to stars are valuable to the advancement of brown dwarf knowledge. These sources are advantageous finds because fundamental properties, such as mass and age, are difficult to measure for brown dwarfs, but can be obtained for their main sequence primaries. We have identified a brown dwarf, SDSS J1632+3505, as a likely companion to the sun-like star HD 149361. We propose that this pair is gravitationally bound by determining similar distances (29+/-5 pc for brown dwarf; 36+/-6 pc for star) and similar proper motions. We classify the near-infrared spectrum of SDSS J1632+3505 as an L1 dwarf with a temperature of 1900 + /-200 K. We also find a rough age estimate of 400 + -200 Myr. Using high-resolution optical spectroscopy, we classify HD 149361 as K0 +/-2 subtypes, with a temperature of 5250+/-350 K. Using lithium abundance relations, we estimate an age around 300 + -200 Myr. The consistency between the distances, proper motions, and ages confirm coevality although chromospheric activity may be used as an age indicator to further constrain the age of the star and declare this system a useful benchmark for testing atmosphere models of cool stars, brown dwarfs, and extrasolar planets.

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