



Chemical & Physical Sciences

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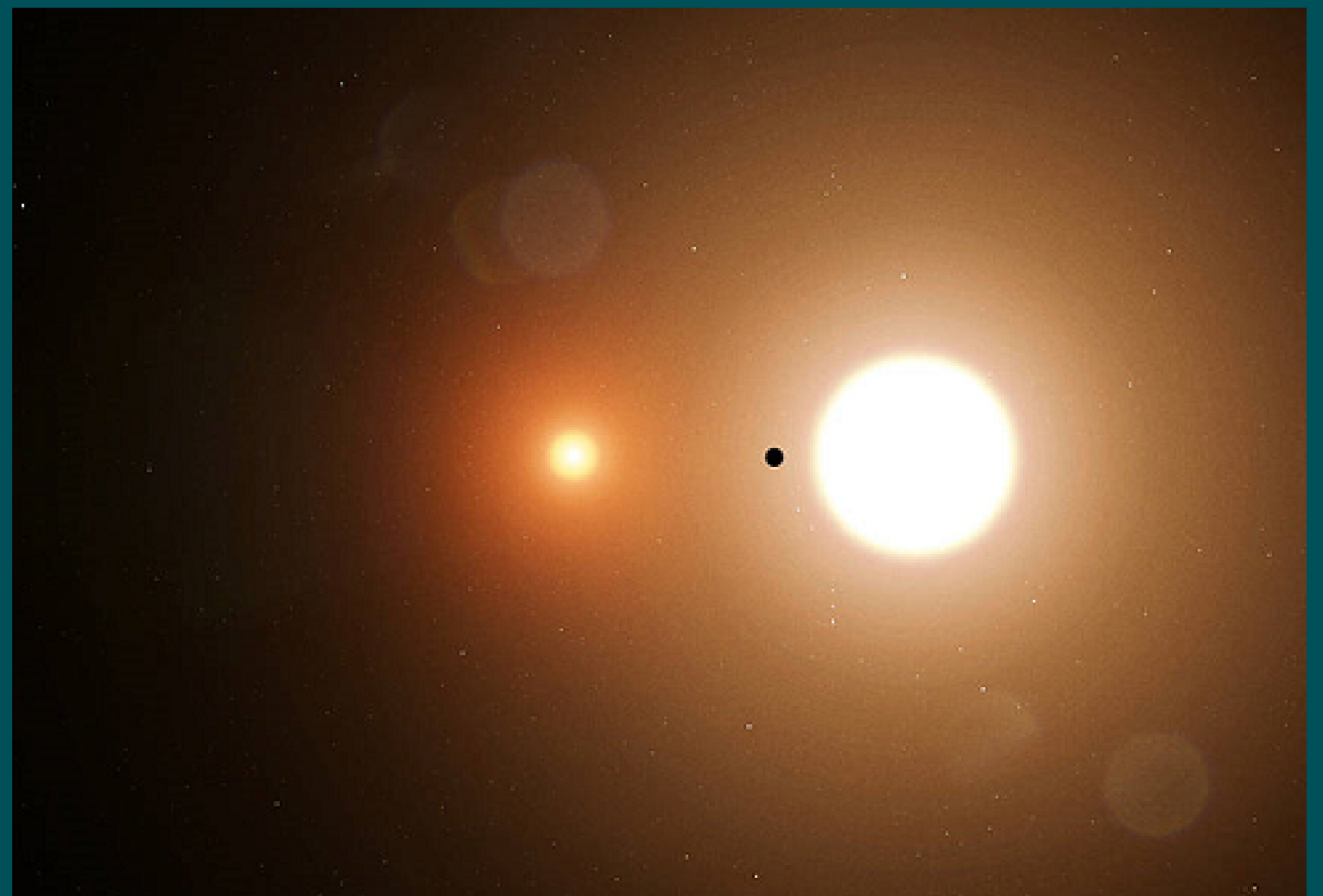
MISSISSAUGA

COLLOQUIUM SEMINAR SERIES

HERE COME THE SUNS: UNDERSTANDING PLANETS IN BINARY STAR SYSTEMS



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Exoplanet missions have uncovered many thousands of extrasolar planets in the solar neighborhood, allowing us to address questions of planet formation and evolution from a statistical standpoint. However, most of these missions are “Earth-centric” – focused on finding planets orbiting stars like the Sun. One stellar characteristic that has been insufficiently studied is multiplicity – although the Sun is a single star, nearly half of all sun-like stars live in binary or multiple systems, so understanding the effects of a second star on the planet formation and evolution process is essential for a complete picture. In this talk, I will describe a survey of nearby sun-like stars aimed at understanding the impacts of stellar multiplicity on the occurrence rates and properties of giant planets. We sought to answer the following questions: how common or rare are planets in binary systems? How does the answer to this question depend on properties of the binary orbit, or properties of the planet? We found that close binary systems – those with two stars separated by less than 50 AU – are inhospitable environments for the formation and survival of giant planets. Wider binaries allow for planet formation but may affect the final positions of the planets by causing inward migration.

Colloquium Seminar Series

Wednesday, September 22, 2021

Join us on Zoom at 3:10pm

<https://utoronto.zoom.us/j/84409166490>