Binarity Affects Planet Migration Yanqin Wu, Michael Ramsahai, Norm Murray

Bottom-line: We propose that a significant fraction of hot Jupiters (a < 0.1 AU) may have been migrated inward by a binary companion.

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 $\odot \sim 60\%$ stars are binaries ■ median separation of binaries ~ 30AU

 \ge > 25% planets are in binary systems

3C













systems binary Percent

1) if 100% planet-bearing stars were in binaries (arbitrary orientation), 2% will host hot Jupiters

2) the 3-day pile-up is a signature of Kozai-migration (Kozai cycles + Tidal dissipation)

Predictions & Conjectures:
3-day planets in binaries? no friends?
planet size difference reflect migration time?
orbital geometry
spin-orbit angle mis/alignment
the roles of disk migration/planet scattering?



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Questions for Observers:

1) How many stars are in binaries in PMS phases?

2) Are binary - circumstellar disk inclinations random?