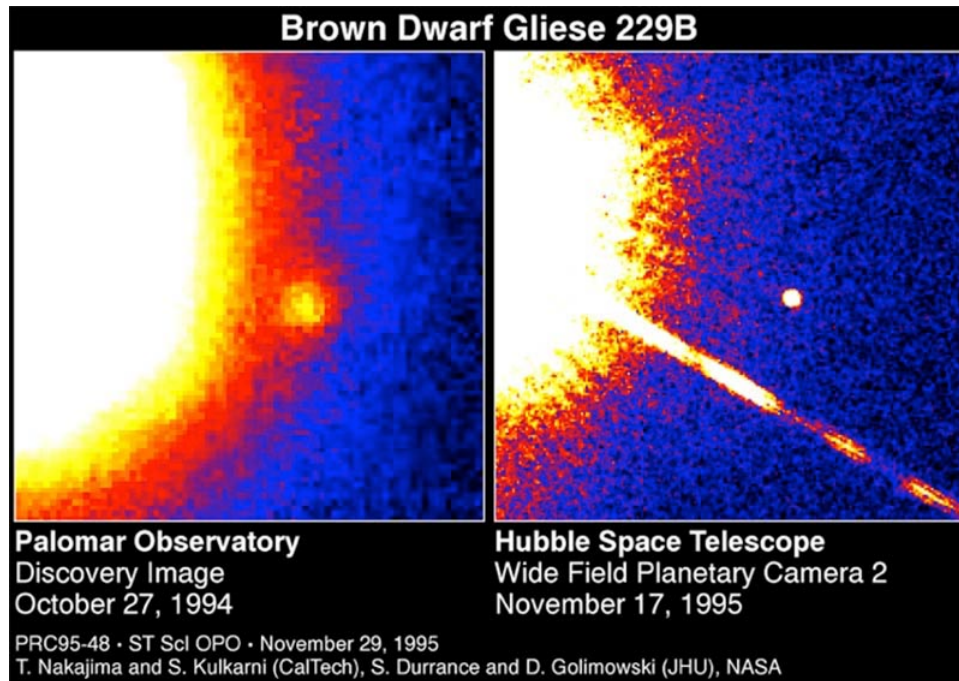


6.13: Extrasolar Planets



These images show Brown Dwarf Gliese 229B, orbiting its star Gliese 229. Gliese 229B is in the white circle on each image. The left image was the discovery image, taken with the Palomar Telescope in California. The right image was taken with the Hubble Space Telescope. Public Domain | Image courtesy of NASA.

The extrasolar planets tell us a lot about our own solar system's formation and development. Yet, there are some significant issues at this point. First, there appears to be numerous exoplanets much larger than Jupiter. Why is this so? And many of these extrasolar planets orbit much closer to their stars than our Gas Giants, which are much further from the Sun. The thinking here is that these Gas Giants "migrated" closer to their stars during the development of their stellar systems.

Brown Dwarfs are sub-stellar objects with a mass below that necessary to maintain hydrogen nuclear fusion reactions in their cores, as do stars. Sizes of these brown dwarfs – up to 80 Jupiter masses – range from very large gas giant planets to just below the mass necessary to "turn on" as a star. Are brown dwarfs' planets? Stars? Failed stars? Two extrasolar planets have been discovered orbiting brown dwarfs.

Consider this...

Giordano Bruno (1548-1600) was an Italian Dominican Friar, poet, philosopher, astronomer, and mathematician. His theories about the Universe were considered extreme for his day, eventually leading to his being burned at the stake. Bruno thought the stars were distant suns being orbited by their own planets. He also thought these planets might even harbor life of its own. Bruno also believed the Universe was infinite.

There are countless suns and countless earths all rotating around their suns...

— Friar Giordano Bruno – (1584)

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