= 16 Cygni =

16 Cygni or 16 Cyg is the Flamsteed designation of a triple star system approximately 69 light @-@ years away from Earth in the constellation of Cygnus . It consists of two Sun @-@ like yellow dwarf stars , 16 Cygni A and 16 Cygni B , together with a red dwarf , 16 Cygni C. In 1996 an extrasolar planet was discovered in an eccentric orbit around 16 Cygni B.

= = Distance = =

The parallax of the two brightest stars were measured as part of the Hipparcos astrometry mission . This yielded a parallax of 47 @.@ 44 milliarcseconds for 16 Cygni A and 47 @.@ 14 milliarcseconds for 16 Cygni B. Since the two components are associated , it is reasonable to assume they lie at the same distance , so the different parallaxes are a result of experimental error (indeed , when the associated parallax errors are taken into account , the ranges of the parallaxes overlap) . Using the parallax of the A component , the distance is 21 @.@ 1 parsecs . The parallax of the B component corresponds to a distance of 21 @.@ 2 parsecs .

= = Stellar components = =

16 Cygni is a hierarchal triple system . Stars A and C form a close binary with a projected separation of 73 AU . The orbital elements of the A ? C binary are currently unknown . At a distance of 860 AU from A is a third component designated 16 Cygni B. The orbit of B relative to the A ? C pair was determined in 1999 and not updated since (as of June 2007) : plausible orbits range in period from 18 @,@ 200 to 1 @.@ 3 million years , with a semimajor axis ranging from 877 to 15 @,@ 180 AU . In addition B orbits between 100 and 160 degrees inclination , that is against the A ? C pole such that 90 degrees would be ecliptical .

Both 16 Cygni A and 16 Cygni B are yellow dwarf stars like the Sun . According to data from the Geneva ? Copenhagen survey , both stars have masses similar to the Sun . Age estimates for the two stars vary slightly , but 16 Cygni is likely to be much older than the Solar System , at around 10 @,@ 000 million years old . 16 Cygni C is much fainter than either of these stars , and may be a red dwarf .

= = Planetary system = =

In 1996 an extrasolar planet in an eccentric orbit was announced around the star 16 Cygni B. The planet 's orbit takes 798 @.@ 5 days to complete , with a semimajor axis of 1 @.@ 68 AU .

Like the majority of extrasolar planets detectable from Earth , 16 Cygni Bb was deduced from the radial velocity of its parent star . At the time that only gave a lower limit on the mass : in this case , about 1 @.@ 68 times that of Jupiter . In 2012 , two astronomers , E. Plavalova and N.A. Solovaya , showed that the stable orbit would demand about 2 @.@ 38 Jupiter masses , such that its orbit was inclined at either 45 ° or 135 ° .

For the 16 Cyg B system , only particles inside approximately 0 @.@ 3 AU remained stable within a million years of formation , leaving open the possibility of short @-@ period planets . For them , observation rules out any such planet of over a Neptune mass .

There was a METI message sent to the 16 Cygni system . It was transmitted from Eurasia 's largest radar ? the 70 @-@ meter (230 @-@ foot) Eupatoria Planetary Radar . The message was named Cosmic Call 1 ; it was sent on May 24 , 1999 , and it will reach 16 Cygni in November 2069 .

The 16 Cygni system is within the field of view of the Kepler space telescope .