

= HD 217107 =

HD 217107 ( 6 G. Piscium ) is a yellow subgiant star approximately 65 light @-@ years away from Earth in the constellation of Pisces ( the Fish ) . Its mass is very similar to the Sun 's , although it is considerably older . Two planets have been discovered orbiting the star : one is extremely close and completes an orbit every seven days , while the other is much more distant , taking eight years to complete an orbit .

= = Distance , age , and mass = =

HD 217107 is fairly close to the Sun : the Hipparcos astrometric satellite measured its parallax as 50 @.@ 71 Milliarcseconds , which corresponds to a distance of 65 light years . Its apparent magnitude is 6 @.@ 17 , making it just barely visible to the naked eye under favourable conditions .

Spectroscopic observations show that its spectral type is G7 or G8 , which means its temperature is about 5 @,@ 000 K. Its mass is thought to be roughly the same as the Sun 's , although its estimated age of 7 @.@ 7 billion years is rather older than the Sun 's 4 @.@ 6 billion years , and it is thought to be beginning to evolve away from the main sequence , having consumed almost all the hydrogen in its core in nuclear fusion reactions .

= = Planetary system = =

A study of the radial velocity of HD 217107 carried out in 1998 revealed that its motion along the line of sight varied over a 7 @.@ 1 @-@ day cycle . The period and amplitude of this variation indicated that it was caused by a planetary companion in orbit around the star , with a minimum mass slightly greater than that of Jupiter . The companion planet was designated HD 217107 b .

While most planets with orbital periods of less than 10 days have almost circular orbits , HD 217107 b has a somewhat eccentric orbit , and its discoverers hypothesized that this could be due to the gravitational influence of a second planet in the system at a distance of several astronomical units ( AU ) . Confirmation of the existence of a second planet followed in 2005 , when long term observations of the star 's radial velocity variations revealed a variation on a period of about eight years , caused by a planet with a mass at least twice that of Jupiter in a very eccentric orbit with a semimajor axis of about 4 @.@ 3 AU . The second planet was designated HD 217107 c .