= 55 Cancri b =

55 Cancri b (abbreviated 55 Cnc b) , occasionally designated 55 Cancri Ab (to distinguish it from the star 55 Cancri B) , also named Galileo , is an extrasolar planet orbiting the Sun @-@ like star 55 Cancri A every 14 @.@ 65 days . It is the second planet in order of distance from its star , and is an example of a hot Jupiter , or possibly rather " warm Jupiter " .

In July 2014 the International Astronomical Union launched a process for giving proper names to certain exoplanets and their host stars . The process involved public nomination and voting for the new names . In December 2015 , the IAU announced the winning name was Galileo for this planet . The winning name was submitted by the Royal Netherlands Association for Meteorology and Astronomy of the Netherlands . It honors early @-@ 17th century astronomer and physicist Galileo Galilei .

= = Discovery = =

55 Cancri b was discovered in 1996 by Geoffrey Marcy and R. Paul Butler . It was the fourth known extrasolar planet , excluding pulsar planets . Like the majority of known extrasolar planets , it was discovered by detecting variations in its star 's radial velocity caused by the planet 's gravity . By making sensitive measurements of the Doppler shift of the spectrum of 55 Cancri A , a 15 @-@ day periodicity was detected . The planet was announced in 1996 , together with the planet of Tau Boötis and the innermost planet of Upsilon Andromedae .

Even when this inner planet , with a mass at least 78 % times that of Jupiter was accounted for , the star still showed a drift in its radial velocity . This eventually led to the discovery of the outer planet 55 Cancri d in 2002 .

= = Orbit and mass = =

55 Cancri b is in a short @-@ period orbit , though not so extreme as that of the previously detected hot Jupiter 51 Pegasi b . The orbital period indicates that the planet is located close to a 1 : 3 mean motion resonance with 55 Cancri c , however investigations of the planetary parameters in a Newtonian simulation indicate that while the orbital periods are close to this ratio , the planets are not actually in the resonance .

In 2012 , b 's upper atmosphere was observed transiting the star ; so its inclination is about 85 degrees , coplanar with 55 Cancri e . This helped to constrain the mass of the planet but the inclination was too low to constrain its radius .

The mass is about .85 that of Jupiter .

= = Characteristics = =

55 Cancri b is a gas giant with no solid surface . The atmospheric transit has demonstrated hydrogen in the upper atmosphere .

That transit is so tangential , that properties such as its radius , density , and temperature are unknown . Assuming a composition similar to that of Jupiter and that its environment is close to chemical equilibrium , 55 Cancri b 's upper atmosphere is predicted to be cloudless with a spectrum dominated by alkali metal absorption .

The atmosphere 's transit indicates that it is slowly evaporating under the sun 's heat . The evaporation is slower than that for previously studied (hotter) hot Jupiters .

The planet is unlikely to have large moons , since tidal forces would either eject them from orbit or destroy them on short timescales relative to the age of the system .