= WASP @-@ 43 =

WASP @-@ 43 is a K @-@ type star in the Sextans constellation . It is about half the size of the Sun , and has approximately half the mass . WASP @-@ 43 has one known planet in orbit , a Hot Jupiter called WASP @-@ 43b . At the time of publishing of WASP @-@ 43b 's discovery on April 15 , 2011 , the planet was the most closely orbiting Hot Jupiter discovered . The small orbit of WASP @-@ 43b is thought to be caused by WASP @-@ 43 's unusually low mass . WASP @-@ 43 was first observed between January and May 2009 by the SuperWASP project , and was found to be cooler and slightly richer in metals than the Sun . WASP @-@ 43 has also been found to be an active star that rotates at a high velocity .

= = Observational history = =

WASP @-@ 43 was first observed by the WASP @-@ South part of the planet @-@ searching SuperWASP project between January and May 2009 . It was determined from the collected data that WASP @-@ 43 could potentially host a planet that transited , or crossed in front of , its host star as seen from Earth . Later observations by both the WASP @-@ South and SuperWASP @-@ North sections of SuperWASP between January and May 2010 yielded a total of 13 @,@ 768 data points .

Scientists interpreted that a 0 @.@ 81 @-@ day orbit of a possible planet from the data , and followed up with observations using the CORALIE spectrograph on the Leonhard Euler Telescope at Chile 's La Silla Observatory . CORALIE provided radial velocity measurements that indicated that WASP @-@ 43 was being transited by a planet that was 1 @.@ 8 times Jupiter 's mass , now dubbed WASP @-@ 43b . Another follow @-@ up using the TRAPPIST telescope further defined the light curve of the body transiting WASP @-@ 43 .

WASP @-@ 43b 's discovery was reported on April 15 , 2011 in the journal Astronomy and Astrophysics .

= = Characteristics = =

WASP @-@ 43 is a K @-@ type star with a mass that is 0 @.@ 58 times that of the Sun , and a radius that is 0 @.@ 93 times that of the Sun . In other words , WASP @-@ 43 is far less massive than the Sun , but is approximately the same size . With an effective temperature of 4400 K , WASP @-@ 43 is cooler than the Sun . It also has slightly lower quantities of iron than the Sun , with a measured metallicity of [Fe / H] = -0.05 (89 % of that measured in the Sun) . However , in general , the star has a slightly larger quantity of metals than the Sun . A notable exception is lithium , which is not present in WASP @-@ 43 's spectrum . However , the star 's spectrum also indicates that WASP @-@ 43 is an active star . WASP @-@ 43 has been found to rotate quickly , although the exact mechanism that causes such speed in this rotation is uncertain , it may be possible that this is caused by tidal interactions between WASP @-@ 43 and its planet .

With an apparent magnitude of 12 @.@ 4 , WASP @-@ 43 cannot be seen with the unaided eye . The star is located approximately 80 parsecs (260 light years) away from Earth .

= = Planetary system = =

WASP @-@ 43b is a Hot Jupiter with a mass that is 1 @.@ 78 times the mass of Jupiter and a radius that is 0 @.@ 93 times Jupiter 's radius . WASP @-@ 43b orbits its host star every 0 @.@ 813475 days (19 @.@ 5234 hours) at a distance of 0 @.@ 0142 AU , the closest orbit yet found at the time of WASP @-@ 43b 's discovery . WASP @-@ 43 's unusually low mass accounts for WASP @-@ 43b 's small orbit . Because planets with orbits around stars like WASP @-@ 43 are not usually observed , models either suggest that planets like WASP @-@ 43b are either uncommon or have short lifetimes caused by a decay in their orbits . WASP @-@ 43b has a density of 2 @.@ 20 g / cm3