
The discovery of a planet in a polar orbit of a 1.4 solar-mass star

Eike Guenther*¹

¹Thüringer Landessternwarte Tautenburg (TLS) – Sternwarte 5 07778 Tautenburg, Germany

Abstract

Although hundreds of transiting extrasolar-planets have discovered only very few of the orbit stars that are more massive than the Sun. The discovery of such planets is interesting because we know from Spitzer observations that the disk from which these planets have formed were more massive than those of solar-like stars but we also know that these disks had a much shorter lifetime. Such planets thus set strong constrains on the times-scales at which planets form. Another interesting aspect is that hot stars have no, or very shallow convection zones, which means that the tidal dissipation is too weak to align the orbits of the planets. Thus, planets of such stars must have largely kept their original orbital inclinations, which means that we can use them to find out how planets migrate inwards. In here we report on the discovery made by CoRoT of a planet of a 1.4 solar-mass star with a period of 5.6 days in a polar orbit. This new planet thus is one of the few close-in planets that is orbiting a relatively hot star for which the Rossiter-McLaughlin effect has been measured. The fact that this planet is again highly misaligned supports the picture that planets form relatively quickly, and the close-in ones do not migrate via interaction with the disk but are most likely effected by planet-planet interaction, or Kozai effect.

*Speaker