EP 15 Extrasolare Planeten

Zeit: Mittwoch 08:30–09:45 Raum: TU BH349

Hauptvortrag

EP 15.1 Mi 08:30 TU BH349

Extrasolar Planets — •Heike Rauer — Institut für Planetenforschung, DLR, 12489 Berlin

In the past decade our knowledge on planets outside our own solar system has grown dramatically. More than 120 planets have been discovered so far. While most of them are objects of about Jupiter mass, recently the first planets with lower mass limits near Neptune's mass have been discovered. Most of the known planets have been discovered by periodic stellar radial velocity variations. However, other detection methods, like photometric transits and microlensing, have started to give the first results. In addition, absorption lines of atoms and ions in the extended atmosphere of the transiting planet HD209458b have been measured. The talk will give an overview on our current knowlegde of extrasolar planetary systems and on future activities to search and characterize extrasolar planets.

EP 15.2 Mi 09:00 TU BH349

Einschränkung der Bahnparameter heißer extrasolarer Planeten durch Betrachtung von Gezeitenwechselwirkung mit dem Zentralstern — •Ludmila Carone und Martin Pätzold — Instiut für Geophysik und Meteorologie, Universität zu Köln, Albertus-Magnus-Platz, 50923 Köln

Seit der Entdeckung von 51 Pegasi b 1995 wurden über 100 weitere jupiterähnliche extrasolare Planeten um sonnenähnliche Sterne gefunden. Einige davon befinden sich in großer Nähe zu ihrem Zentralstern. Diese Planeten sind extremen Gezeitenwechselwirkungen unterworfen.

Wir werden anhand von drei Beispielen (OGLE-TR-56b, OGLE-TR-113b und OGLE-TR-132b) demonstrieren, wie Bahnelemente, Sternalter und Sternrotation verwendet werden können, um Dissipations-Eigenschaften extrasolarer Planeten und ihrer sonnenähnlichen Zentralsterne einzugrenzen. Dies kann verglichen werden mit Werten, die von den Planeten des Sonnensystems und von unserer Sonne bekannt sind.

EP 15.3 Mi 09:15 TU BH349

Plasma Interactions in Extrasolar Planetary Systems — •Sabine Preusse[1], Andreas Kopp[1,2], Jörg Büchner[1], and Uwe Motschmann[3] — [1]Max-Planck-Institut für Sonnensystemforschung, Katlenburg-Lindau — [2]Astronomisches Institut, Ruhr-Universität Bochum — [3]Institut für Theoretische Physik, TU Braunschweig

One of the most important discoveries during the last decade are extrasolar planets. A striking feature of many extrasolar planetary systems is the close vicinity of the planets to their stars. This implies interaction features between star and planet which may be considerably different to those known from the solar system. One outstanding example is the "hot spot" which moves with the orbital period of the companion planet in the chromosphere of HD 179949. In order to gain insight into the processes involved and to possibly make predictions for future observations, we aim at modelling some kind of magnetic interaction between star and planet. For this we assume that the stellar wind plays an important role in such extreme planetary systems. In order to take it into account, we model the stellar wind environment with the magnetohydrodynamic description of Weber & Davis. The results of these computations are then used as an input model for 3D simulations of the stellar wind interaction with possible planetary magnetospheres in the framework of resistive magnetohydrodynamics.

EP 15.4 Mi 09:30 TU BH349

Towards diect detection of young exo-planets — •Ralph Neuhaeuser[1], Eike Guenther[2], Guenther Wuchterl[1] und Markus Mugrauer[1] — [1]AIU Jena — [2]TLS Tautenburg

Since several years, we obtain deep, high-resolution imaging observations of the surroundings of young (up to 100 Myrs) nearby (up to 150 pc) stars in order to detect sub-stellar companions directly, both brown dwarfs and massive planets. Young stars are good targets, because their companions are also young and, hence, self-luminous due to ongoing contraction. For the observations, we used the speckle camera Sharp at the ESO 3.5m NTT and more recently the AO camera NaCo at the ESO 8.2m VLT. So far, several brown dwarfs were found and confirmed by astrometry, photometry, and spectroscopy. We will now also present the first two candidates for planets detected diretly, one in the TW Hya association, and one in the Lupus star forming region.