


G02 - New insights into the dynamics of planets in P-Type motion around binaries

B. Funk, S. Eggl, M. Gyergovits, R. Schwarz, E. Pilat-Lohinger
Institute for Astronomy - University of Vienna

Name	Mass [M_{Sun}]	a_{Bin} [AU]	# Planets	a [AU]
HU Aqr A	0.88	0.0039	2	3.6
HU Aqr B	0.2			5.4
NN Ser A	0.535	0.0043	2	3.39, 3.07
NN Ser B	0.111			5.38, 5.66
HW Vir A	0.485	0.004	2	3.62
HW Vir B	0.142			5.3
DP Leo A	0.6	0.0027	1	8.2
DP Leo B	0.1			

Dynamical studies:

- Eclipse timing variations – is it possible to detect the systems by ETV? 
- Dynamical stability – are the proposed systems long-term stable?

Conclusion and Outlook

- The current proposed data lead to unstable motion for two systems (HU Aqr and HW Vir)
- Taking into account the error bars (best cases) showed, that the systems HU Aqr, HW Vir are still unstable
- Investigations of inclined orbits of the planets ($i = 0^\circ - 50^\circ$, $\Delta i = 10^\circ$) lead also to unstable motion in the systems HU Aqr, HW Vir
- NN Ser:
 - We found unstable and stable motion (for an integration time of 500000 years)
 - The same is also valid for inclined orbits
- Outlook
 - The next step will be to investigate how the initial conditions have to be changed to lead to stable motion of the planets