Modeling light curves of eclipsing binaries with non-circular accretion disks: KU Cyg

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Non-circular disk model

- Model essentially the same as for circular model (Zola 92), just disk shape modified

- Vertical thickness bigger when radius larger
Non-circular disk effects

- Additional affects due to non-circular disk geometry:
  - Asymmetric minimum/minima
  - Heights of maxima can be different
Model application to KU Cyg

A long period Algol-type eclipsing binary
Double peaked Balmer emission lines observed

Searched for the best fit within circular and non-circular models
Conclusions

- Non-circular accretion disk geometry introduces additional effects in the light curve: asymmetry of a minimum and maxima height difference – can be mistakenly taken for spot(s)?

- We confirm Smak & Plavec's (1997) prediction that the disk in KU Cyg occasionally grows and becomes more eccentric in a similar way to what is observed in cataclysmic variables. The timescale of this behaviour is a few years.