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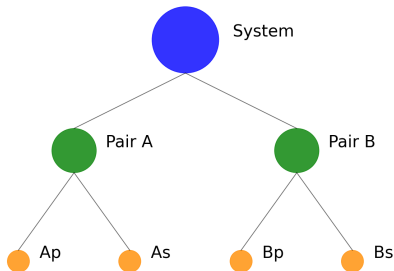
Resonant statistics for doubly eclipsing quadruple candidates

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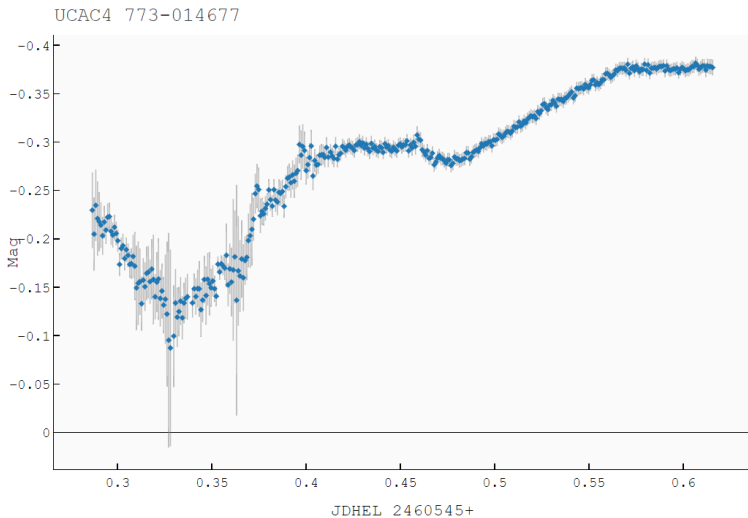
Doubly eclipsing stars

- Four components, 2+2 configuration
- Inner orbital periods P_A and P_B
- Common centre of mass
- Mutual motion of the pairs
- Both pairs eclipsing - two variability sources



Light curves

S8 Cas



AMPER database

Issues

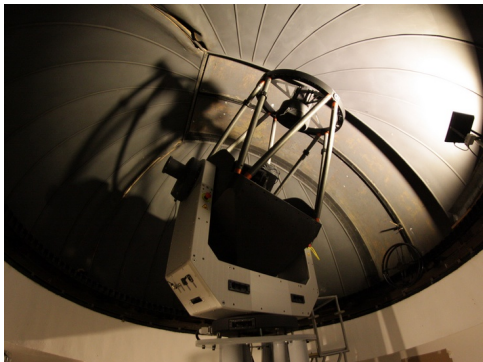
- Various kinds of objects
- 2019: ~ 150 candidates, 2024: ~ 900 candidates
- Only 60 confirmed quadruples
- Formation and evolution
- Inner period ratio distribution, resonances
- Outer periods (only for the shortest ones)

Squadra

- Academics, students, citizen observers
- Photometric and spectroscopic observations of quadruple candidates
- Quadruple nature confirmation
- Physical modelling
- Period properties
- Further collaborations (Z. Henzl, M. Mašek, P. Čagaš, T. Borkovits, G. Handler)

New data collecting

Diameters 0.03 m - 1.54 m



Ždánice

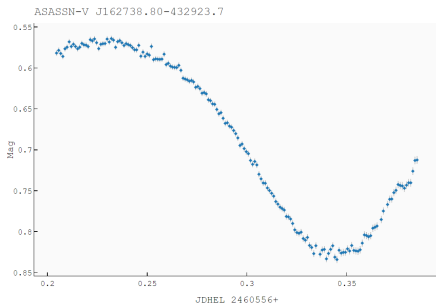


Brno

Brno, Ždánice, Veverská Bítýška, Znojmo, Prostějov, Jirny, Tuscany (Italy), La Silla (Chile), Boyden (RSA)

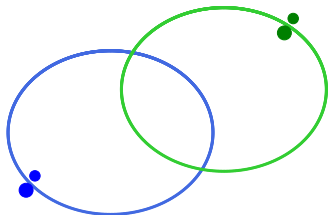
Boyden observatory

Late spring 2024



Period ratio

- Ratio $R = \frac{P_A}{P_B}$
- $R \geq 1$ (always longer over shorter)
- Period ratio distribution
- Predicted model



Summary

- 800 doubly eclipsing systems
- New confirmed quadruples and their models
- R distribution
- 1:1 ratio
- 3:2 ratio - stable and preferred option?
- 2:1 ratio
- Searching for new systems continues

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