Eclipsing binaries within visual ones

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From Interacting Binaries to Exoplanets:
Essential Modeling Tools
Tatranská Lomnica, Slovakia
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DN UMa = 65 UMa - Basic info

- Algol-type EB, period 1.73 d, SB2, V = 6.5 mag
- Visual components: A+B, C, D, and interferometric B
- System AB - period about 118 years
- LC, RV, many times of minima
- Mutual inclination of the two orbits: $i_{2-3} = 47^\circ$
- Spectral types (A3V+A3V) + A8-9 + Ap
- In total 54 spectra from Ondřejov 2-m telescope available
DN UMa = 65 UMa - The system

65 UMa

60 arcs

E

N
DN UMa = 65 UMa - Orbit

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DN UMa = 65 UMa - LC and RV

Phase

Dif. Magnitude

Phase

RV

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DN UMa = 65 UMa - Period variation

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VV Crv - Basic info

- Algol-type eccentric eclipsing binary, $V = 5.27$ mag
- Three visible components (A,B,C)
- EB pair period 3.145 day, apsidal motion of several decades
- Spectral types F5V+F5V
- Periods of the SB pairs: 44.508 and 1.46087 day
VV Crv - The system

VV Crv = HD 110317
Hierarchical sextuple system
(visual + SB2 + SB1 + EB)

60", 150,000 yr

5", 4500 yr

HIP61910N
SB2 binary
period 1.46 d

A

Ab

Aa

HIP61910S
Aa+Ab pair
SB1 binary
period 44.5 d

Ab

Aa-Ab pair
period 44.5 d

C

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VV Crv - BVRI light curves

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Eclipsing binaries within visual ones
• Periods 44.508 and 3.145 days ⇒

Possibility to detect **secular changes** of orbit, **changing the inclination**, and therefore depth of eclipses!
Thank you for your attention!