

Enkele resultaten en beperkingen van de vier behandelde methoden

| | Alleenstaande sterren | | Dubbelsterren | | |
|--|--|-----------------------|----------------------|--|---|
| I <u>Michelson ster interferometrie</u> | - | | Capella | $a = 0,05249$ | [2] |
| | 2 γ | | | | |
| II <u>Intensiteitsinterferometrie</u> lange integratietijden ongevoelig voor seeing $B < 2$, $T_{\text{eff}} > 4000$ K | α CMa | $0,00589 \pm 0,00016$ | Spica. Zie hieronder | | |
| | α Lyr | $0,00324 \quad 07$ | | | |
| | γ^2 Vel | $0,00044 \pm$ | 15 | [3] | |
| | κ Ori | $0,00045 \pm$ | 13 | | |
| | ζ Pup | $0,00042 \pm$ | 13 | | |
| | Enige indicatie randverzwakking bij Sirius: ρ : θ : Δm | | | | |
| III <u>Aanokkultaties</u> gevoelig voor scintillatie $V < 6$, 80% van de te meten sterren (+50) is van type K | Antares | $0,041 \pm 0,001$ | [4] | | |
| | μ Gem | $0,023$ | | | |
| | BD 23° 505 | $0,00158$ | [5] | BD 23° 505 | $0,0062$: 247° : 2.0 [5] |
| IV <u>Speckle Interferometrie</u> observatietijd enkele min voor 100 opnamen $V < 9$. Informatie is tweedimensionaal | α Sco | $0,042 \pm 0,002$ | [9] | β Ceph | $0,255 \pm 0,01$ - 5 [9] |
| | α Her | $0,031 \pm 3$ | | α Sco | $0,180$: 171° : ~ 2 [15] |
| | α Boo | $0,022 \pm 3$ | | α Aur | $0,044$: 276° : 0 [15] |
| | β Peg | $0,016 \pm 2$ | | Enige indicatie randverzwakking bij Betelgeuse | |

- [2] Michelson: 1920, Ap. J. 51, 257
- [3] Hanbury Brown: 1974, The Intensity Interferometer, London
- [4] Evans: 1959, M.N. Astron. Soc. South Africa, 18, 158
- [5] Berg: 1969, Stellar Angular Diameters from Lunar Occultations, Thesis, Univ. Virginia.

| Parameter | Value \pm r.m.s. uncertainty | Source† |
|--|---|---------|
| Inclination of orbit (i) | $65^\circ.9 \pm 1^\circ.8$ | I |
| Angular size of primary (θ_{UD1}) | $(0^\circ.87 \pm 0^\circ.04) \times 10^{-3}$ | I |
| Angular size of secondary (θ_{UD2}) | $(0^\circ.4) \times 10^{-3}$ | Assumed |
| Angular size of primary (limb-darkened) (θ_{LD1}) | $(0^\circ.90 \pm 0^\circ.04) \times 10^{-3}$ | I |
| Angular size of semi-major axis (θ_a) | $(1^\circ.54 \pm 0^\circ.05) \times 10^{-3}$ | I |
| Brightness ratio of components (β) | 6.4 ± 1.0 | I |
| Position angle of line of nodes (Ω) | $131^\circ.6 \pm 2^\circ.1$ | I |
| Sense of orbital motion | Clockwise | I |
| Epoch of periastron passage (T) | JD 2440678.09 | S |
| Eccentricity of orbit (e) | 0.146 | S |
| Longitude of line of apsides (ω) | 138° at JD 2440678 | S |
| Inverse period ($1/P$) | $0.249091 \text{ days}^{-1}$ | S |
| Period of rotation of line of apsides (U) | 124 yr | S |
| Semi-major axis (a) | $(1.93 \pm 0.06) \times 10^7 \text{ km}$ | I+S |
| Distance | $84 \pm 4 \text{ pc}$ | I+S |
| Mass of primary (m_1) | $10.9 \pm 0.9 m_\odot$ | I+S |
| Mass of secondary (m_2) | $6.8 \pm 0.7 m_\odot$ | I+S |
| Radius of primary (R_1) | $8.1 \pm 0.5 R_\odot$ | I+S |
| Surface gravity of primary ($\log g_1$) | 3.7 ± 0.1 [g_1 in c.g.s. units] | I+S |
| Absolute surface flux of primary (\mathcal{F}_{v1} at $1.83 \mu^{-1}$) | $(2.75 \pm 0.24) \times 10^{-3} \text{ erg cm}^{-2} \text{ s}^{-1} \text{ Hz}^{-1}$ | I+P |
| Effective temperature of primary ($T_{e1}(F)$) | $22400 \pm 1000 \text{ K}$ | I+P |
| Luminosity of primary ($\log L_1/L_\odot$) | 4.17 ± 0.10 | I+S+P |
| Absolute magnitude of primary (M_{V1}) | -3.5 ± 0.1 | I+S+P |
| Absolute magnitude of secondary (M_{V2}) | -1.5 ± 0.2 | I+S+P |

† I=interferometric, S=spectroscopic, P=photometric.

Table 11.5. The parameters of Spica (α Vir). From Herbison-Evans, Hanbury Brown, Davis and Allen (1971).

- [9] Gezarie, Labeyrie, Stachnik: 1972, Ap. J. 173, L 1
- [15] Labeyrie, Bonneau: 1974, Ap. J. 194, L 147