

Orbits of the Additional Bodies Around Eclipsing Binaries from Astrometric & Eclipse Timing Observations

Furkan AKAR¹, Özgür BAŞTÜRK¹, Ekrem Murat ESMER^{1,2}, Ezgi SERTKAN¹, Barış GÜLER¹

¹ Department of Astronomy and Space Sciences, Faculty of Science, Ankara University, 061000, Ankara, Türkiye

² Department of Physics and McDonnell Center for the Space Sciences, Washington University, St. Louis, MO 63130, USA



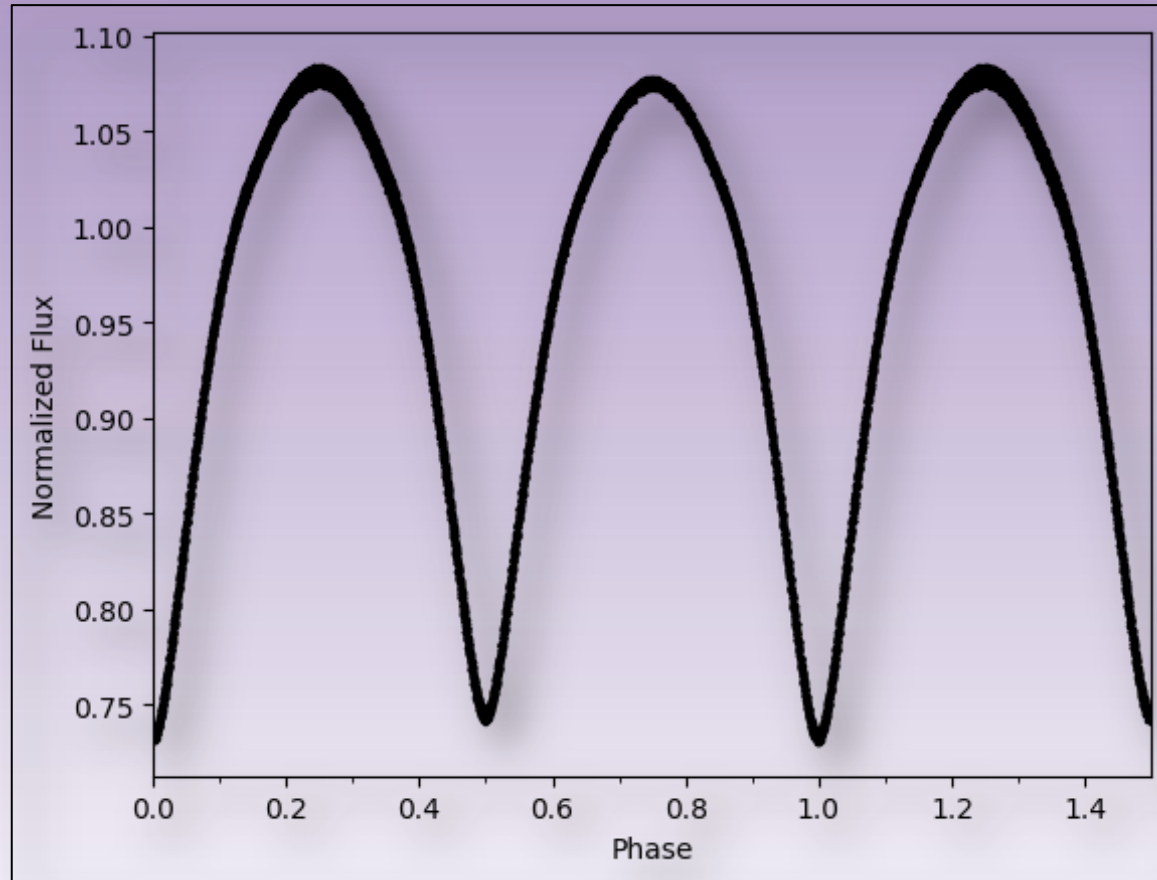
International Conference

Binary and Multiple Stars
in the Era of Big Sky Surveys

Litomyšl, Czech Republic 9th – 13th September 2024



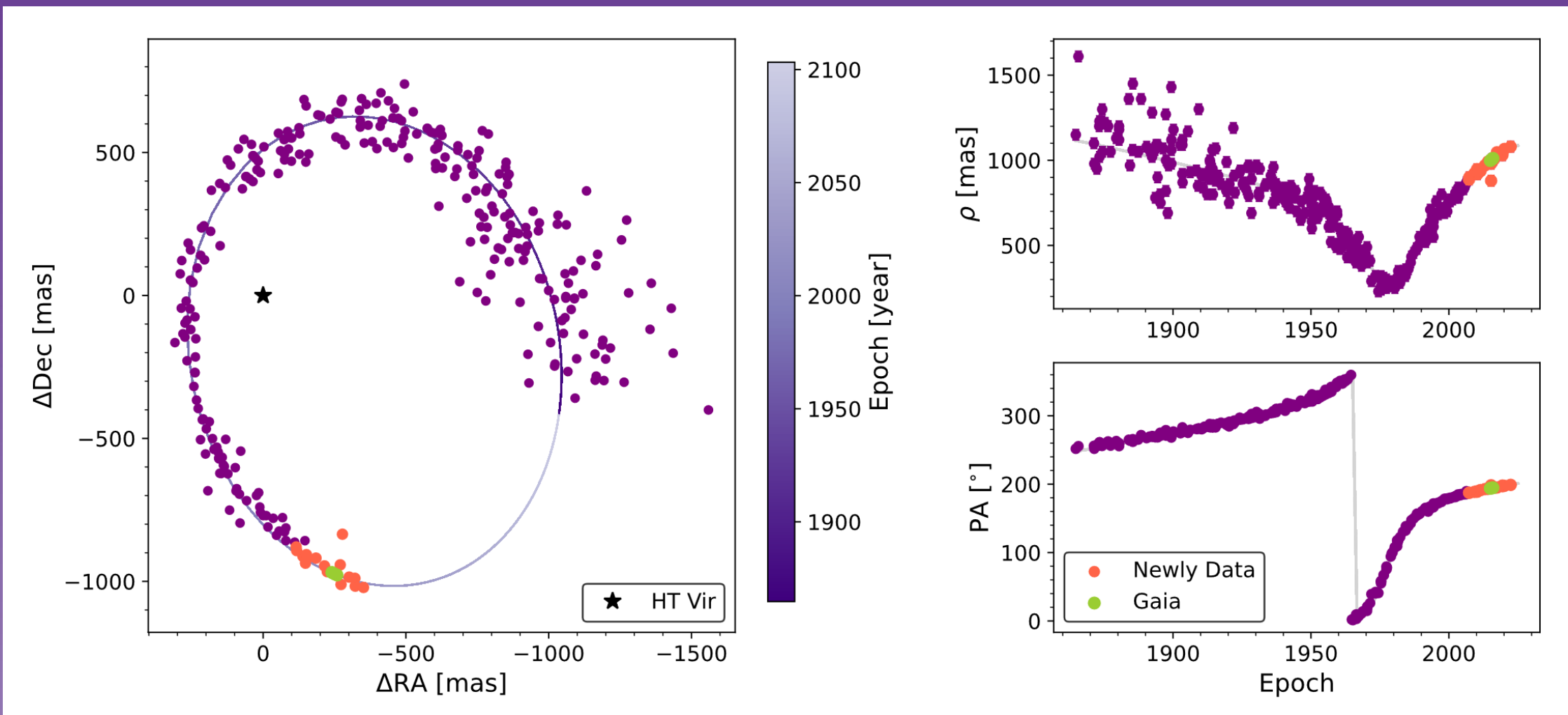
HT Virgo



Phase-folded light curve in TESS Sector 50

Magnitude [m_v]	7.82
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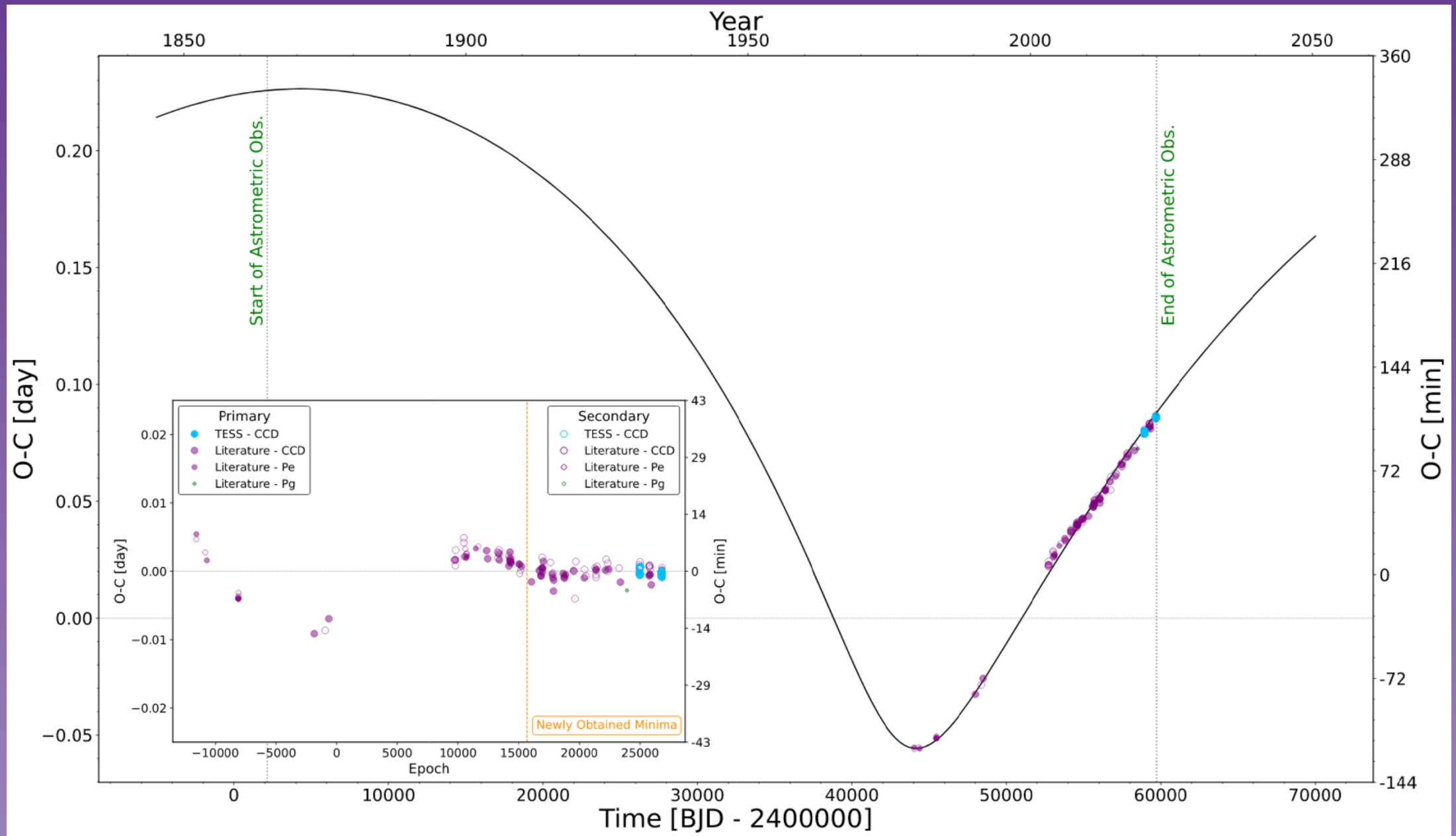
Period [day]	0.41
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Relative orbit of the companion

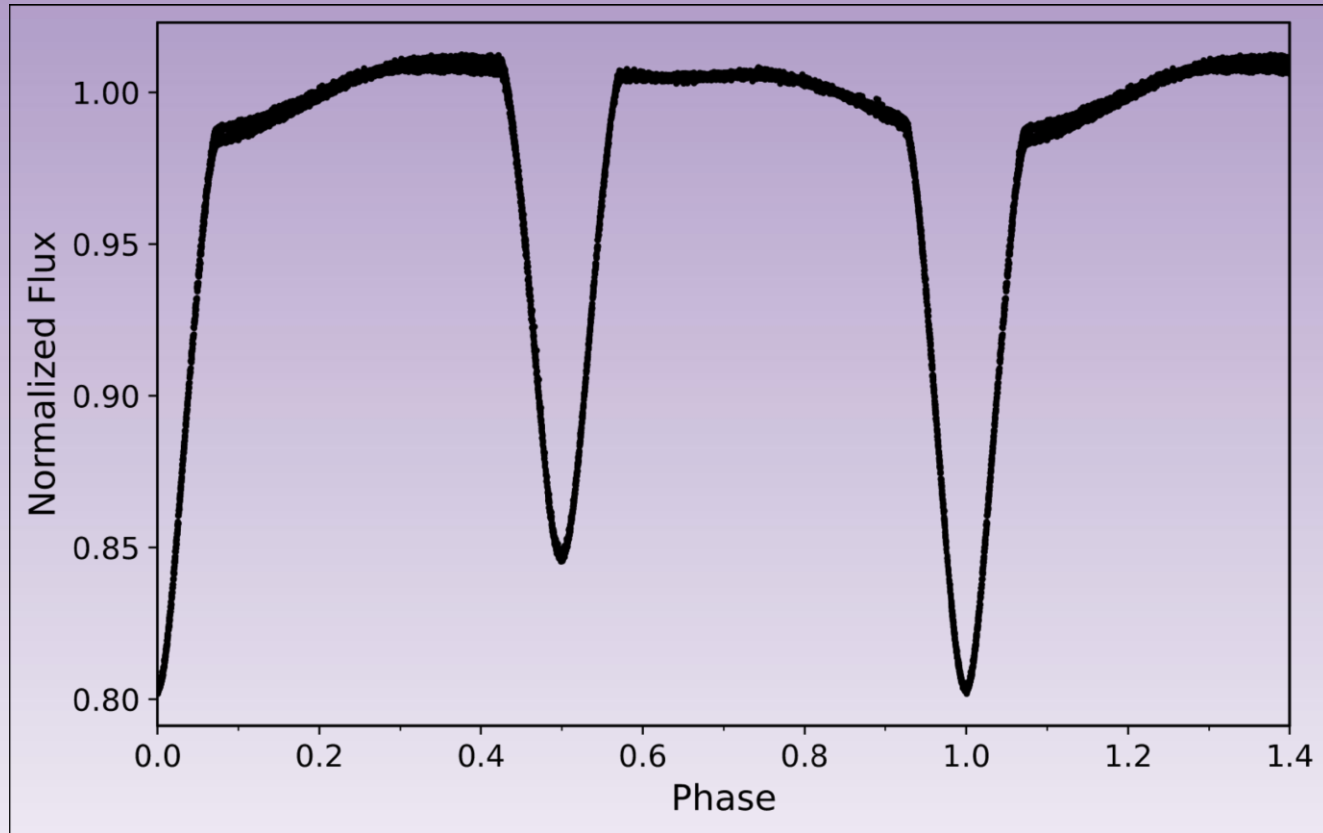
Period P_3 [yr]	Semi-major axis a [AU]	Eccentricity e	Inclination i [°]	Argument of Periastron ω [°]	Longitude of Node Ω [°]	Parallax π [mas]	Total Mass $[M_\odot]$	Epoch of Periastron T_0 [yr]
238.5023 ± 2.8683	64.4571 ± 0.1827	0.6200 ± 0.0001	48.7553 ± 0.0029	254.1245 ± 0.0046	176.7334 ± 0.0037	15.7849 ± 0.0448	4.7079 ± 0.0401	1976.5115 ± 0.0072

Properties of the companion



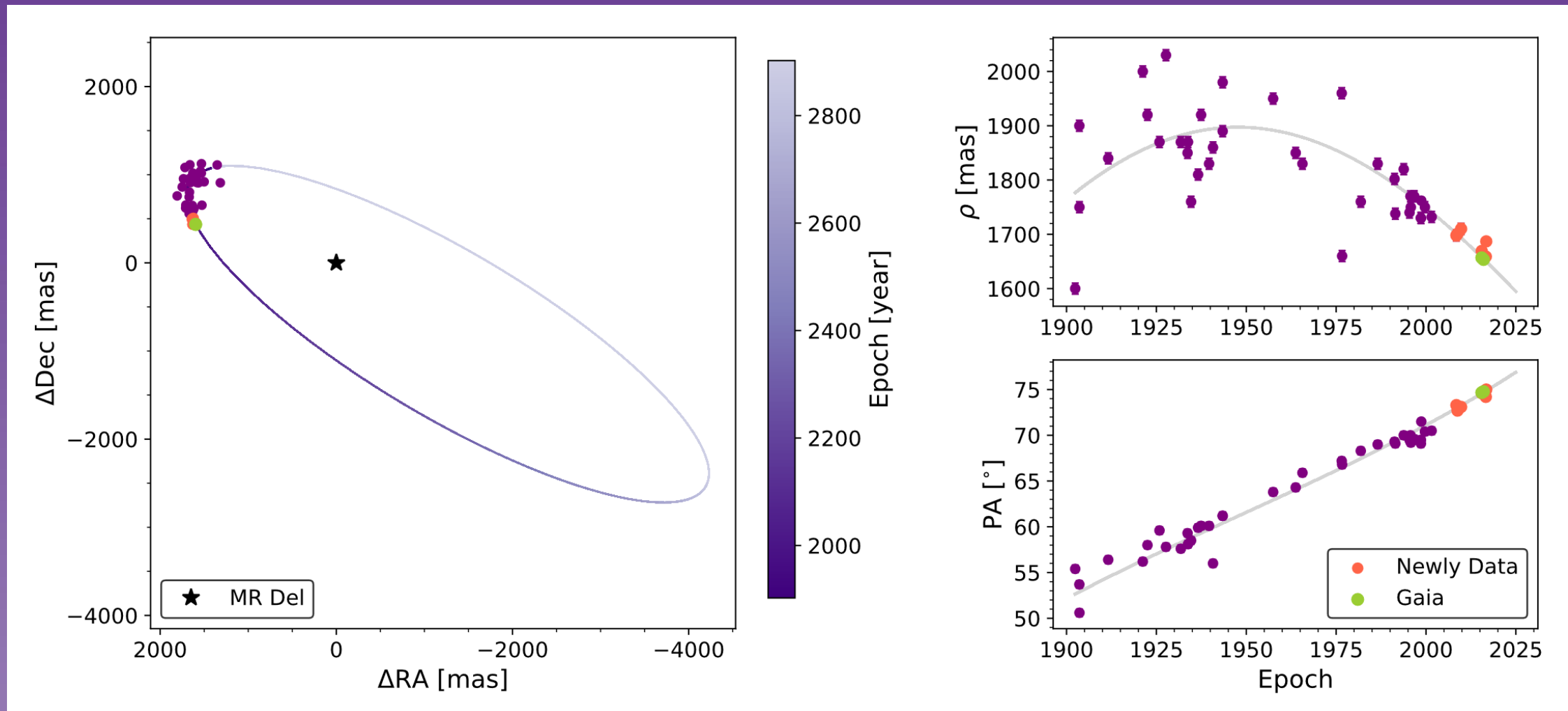
The astrometric orbit of the companion (continuous curve) and its corresponding ETV along with the ETV diagram (inset)

MR Delphinus



Phase-folded light curve in TESS Sector 54

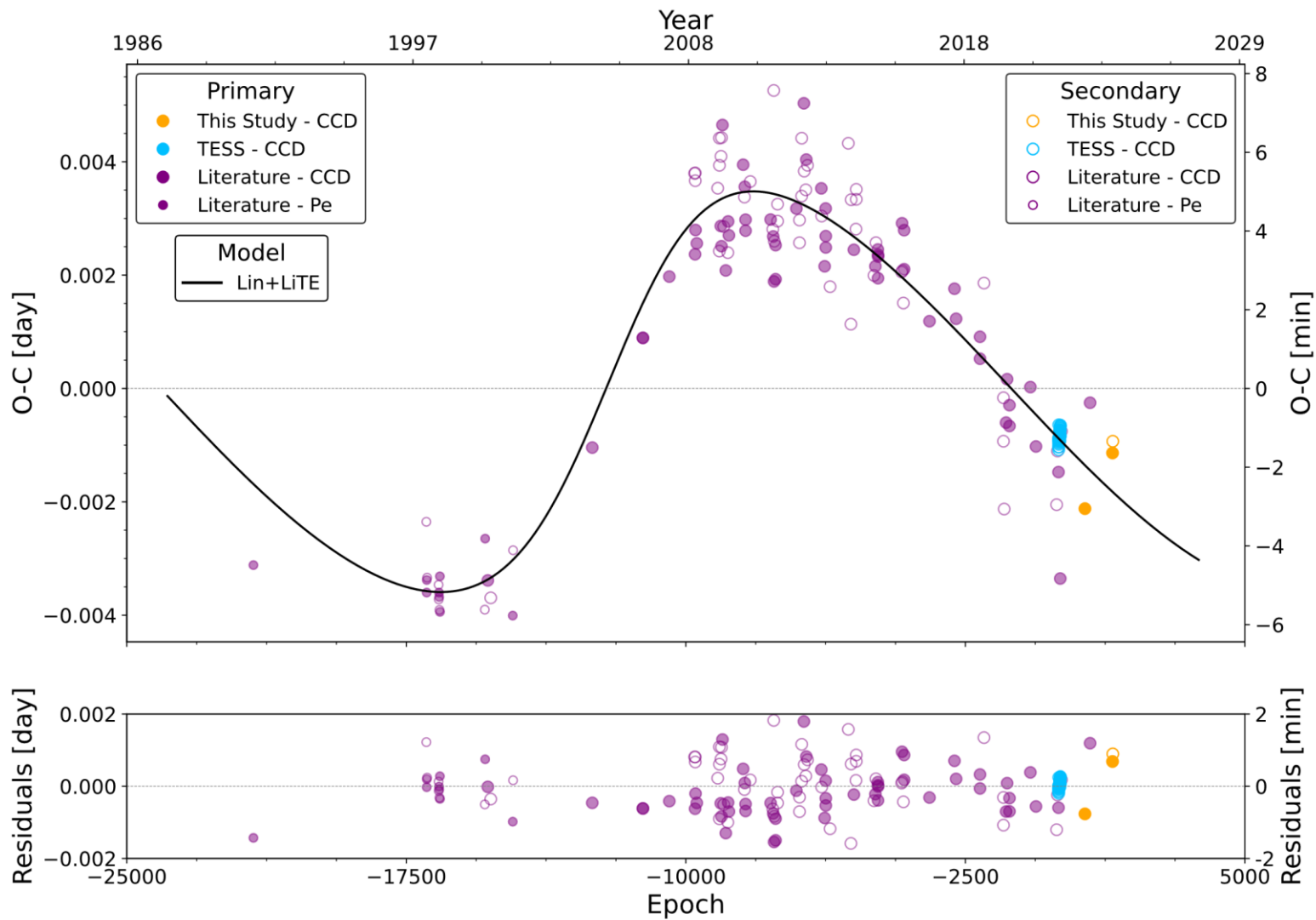
Magnitude [m_v]	9.20
Period [day]	0.52



Relative orbit of the companion

Period P_3 [yr]	Semi-major axis a [AU]	Eccentricity e	Inclination i [°]	Argument of periastron ω [°]	Longitude of node Ω [°]	Parallax π [mas]	Total Mass $[M_\odot]$	Epoch of Periastron T_0 [yr]
1773.8044 ± 82.3864	153.5693 ± 4.4143	0.4453 ± 0.0170	72.101 ± 0.3638	352.0596 ± 4.0422	59.9027 ± 0.6732	22.1742 ± 0.0229	1.1511 ± 0.0398	1927.2466 ± 20.6648

Properties of the companion



Model
Linear + LiTE
$\chi^2_\nu = 13.1757$
AIC = 2161.6425
BIC = 2183.5931

P_3	yr	32.607 ± 1.115
e_3	—	0.389 ± 0.003
ω_3	deg	7.997 ± 0.011
T_0	BJD _{TDB}	2465503.752909 ± 557
A	day	0.00353 ± 0.00001
$a_{12} \sin i$	AU	0.663 ± 0.004
a_3	AU	10.750 ± 1.341
$f(M_3)$	M_\odot	0.00027 ± 0.00003
M_3	M_\odot	0.083 ± 0.008

Best-fit parameters of the ETV Model

ETV Diagram and Model

Thank YOU
for your attention!

Please contact me for your any question!

E-mail
efurkanakar@gmail.com

My poster is waiting for you in EP01!