CJs in systems with inner SPs:
HARPS-N follow-up of Kepler and TESS systems

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and the HARPS-N collaboration

HARPS-N sample of inner SP systems

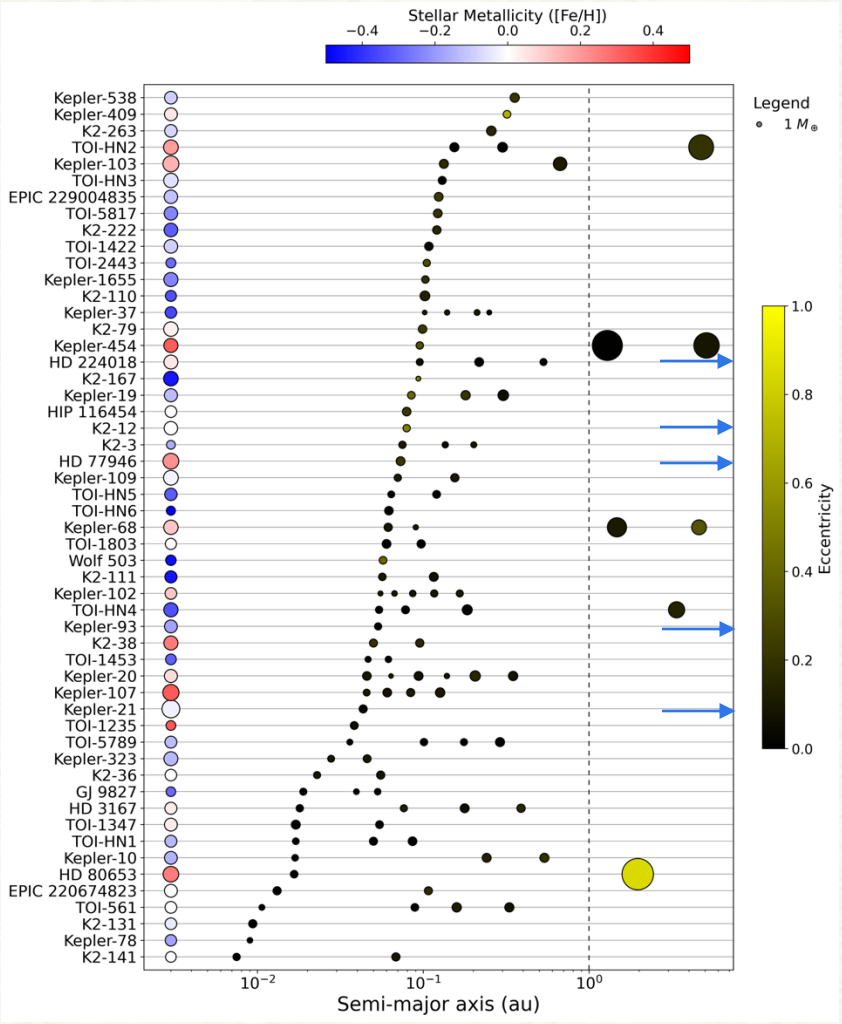
- 17 Kepler systems (Bonomo et al. 2023)
- 20 K2 systems (Bonomo et al. 2023, **+ HD 224018 / K2-420**)
- **16 TESS systems (TOI-561, TOI-1235, TOI-1347, TOI-1422, TOI-1453, TOI-1778, TOI-1803, TOI-2443, TOI-5789, TOI-5817, TOI-HN1, TOI-HN2, TOI-HN3, TOI-HN4, TOI-HN5, TOI-HN6)**

few from GAPS

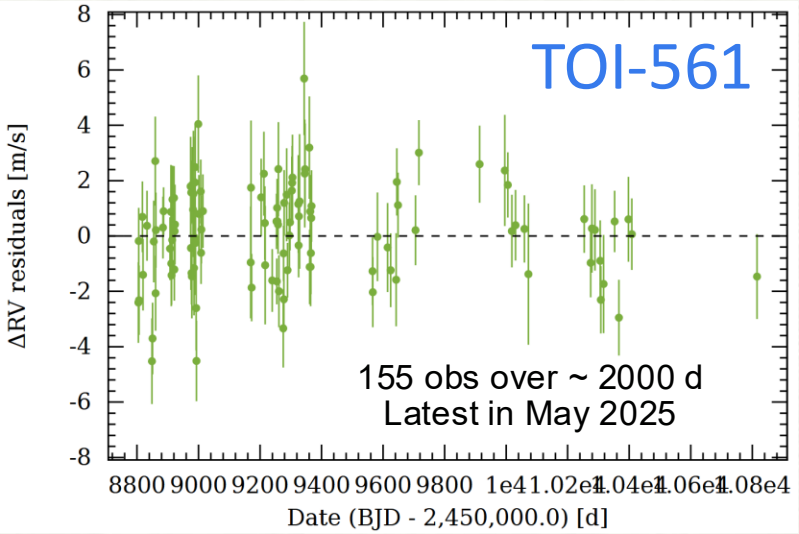
Conditions:

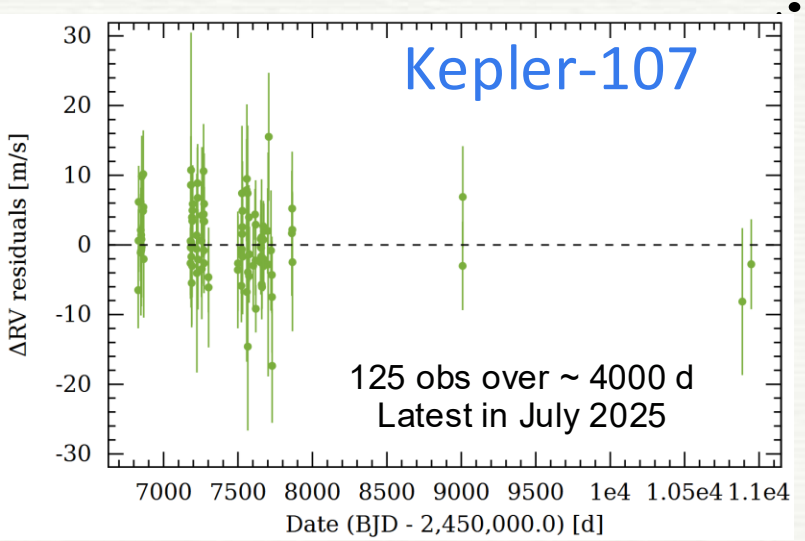
- At least one inner ($P_{orb} < 100$ days) SP ($1 \leq M_p \leq 20 M_\oplus$ within 1σ)
- At least 20 HARPS-N measurements with a baseline longer than 1 year

SAMPLE

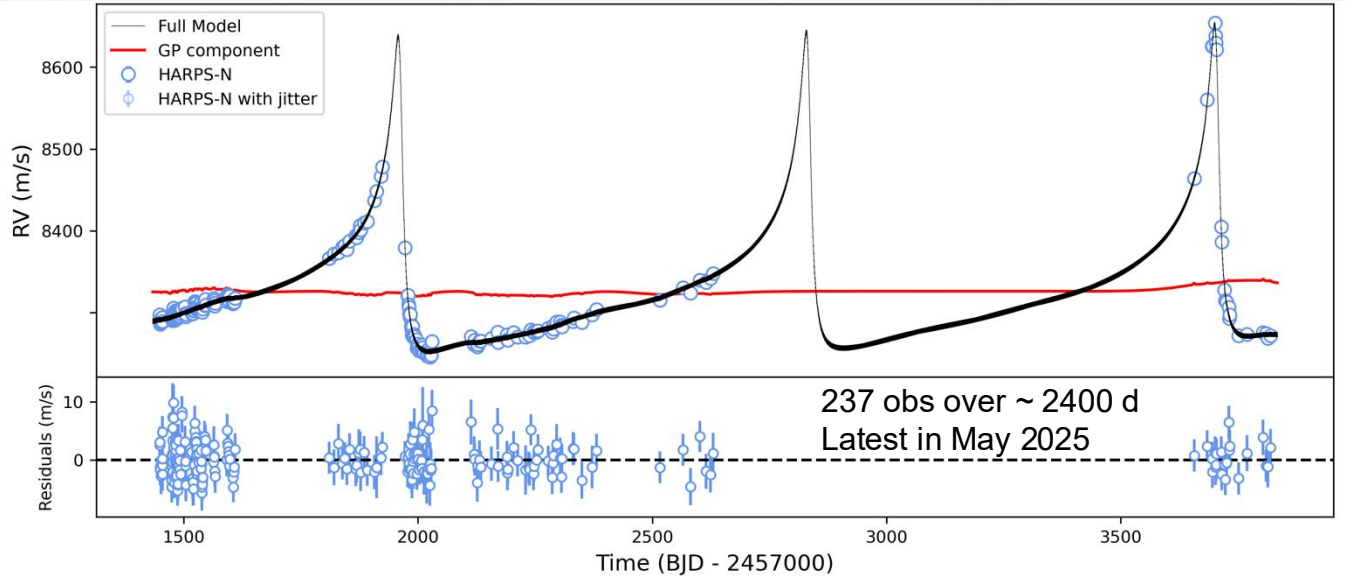

Stellar Metallicity ([Fe/H])
−0.4
−0.2
0.0
0.2
0.4
Kepler-538
Kepler-409
K2-263
TOI-HN2
Kepler-103
TOI-HN3
EPIC 229004835
TOI-5817
K2-222
TOI-1422
TOI-2443
Kepler-1655
K2-110
Kepler-37
K2-79
Kepler-454
HD 224018
K2-167
Kepler-19
HIP 116454
K2-12
K2-3
HD 77946
Kepler-109
TOI-HN5
TOI-HN6
Kepler-68
TOI-1803
Wolf 503
K2-111
Kepler-102
TOI-HN4
Kepler-93
K2-38
TOI-1453
Kepler-20
Kepler-107
Kepler-21
TOI-1235
TOI-5789
Kepler-323
K2-36
GJ 9827
HD 3167
TOI-1347
TOI-HN1
Kepler-10
HD 80653
EPIC 220674823
TOI-561
K2-131
Kepler-78
K2-141
10^{-2}
10^{-1}
10^{0}
Semi-major axis (au)
Legend
1 $M_\oplus$
1.0
0.8
0.6
0.4
0.2
0.0
Eccentricity

Examples with no trend





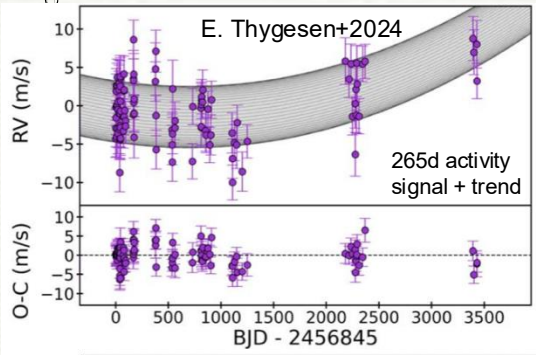
The case of HD80653 c / K2-312 c

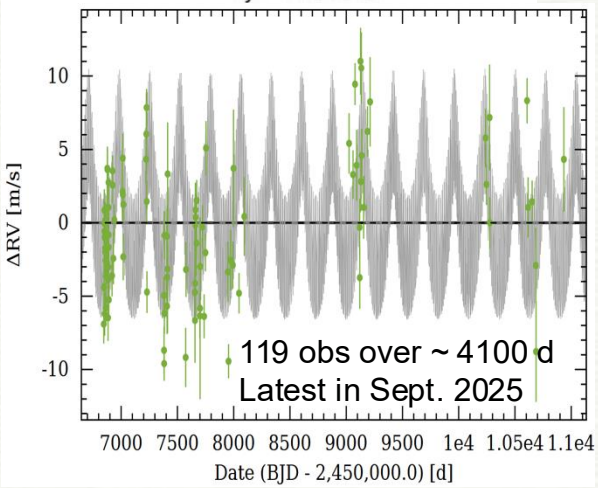


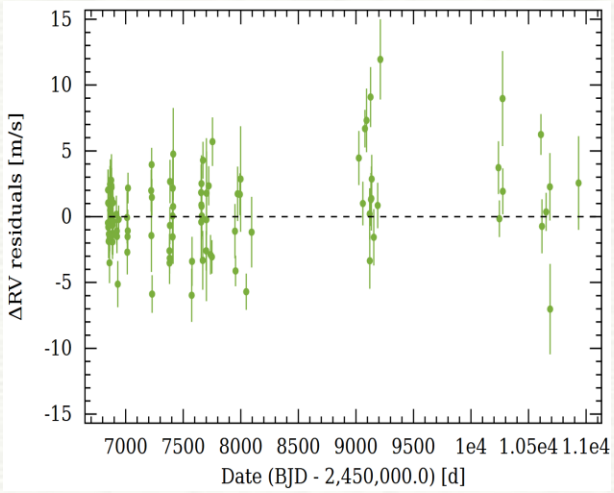
Poretti et al.
in prep.

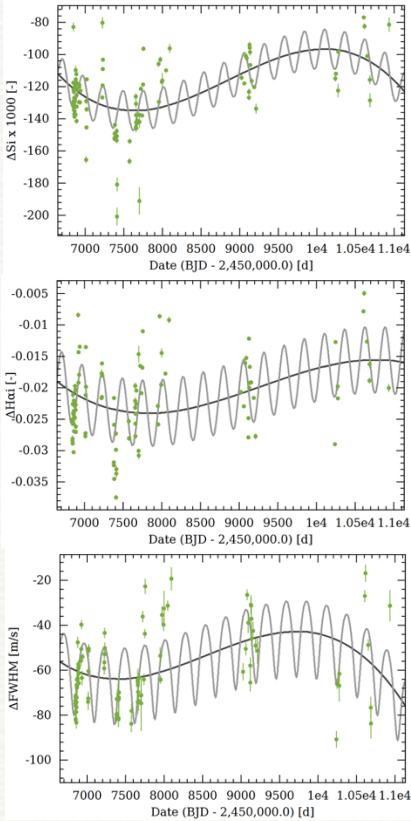
P=871.4 (+0.5-0.2) d, e=0.843 ± 0.002, a=1.88 ± 0.08 au, Msin*i*=5.47 ± 0.17 M_{Jup}

The case of K2-2

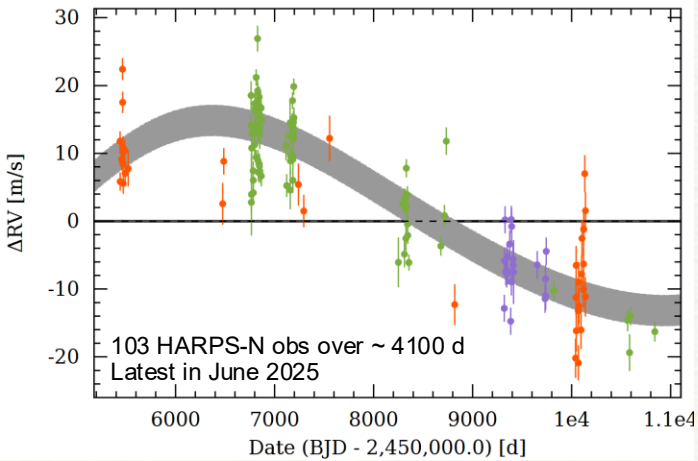




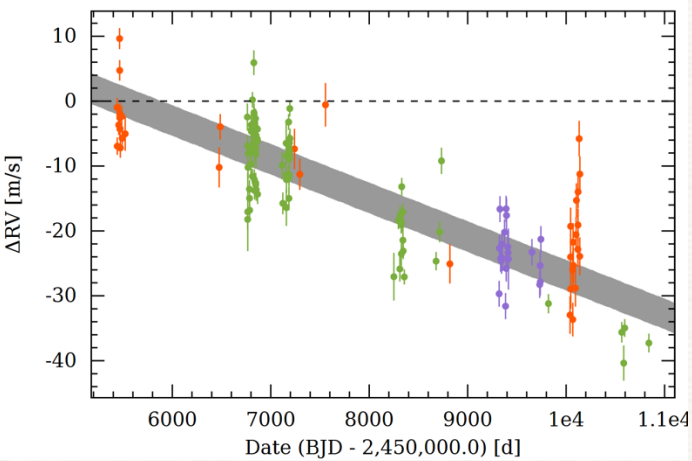


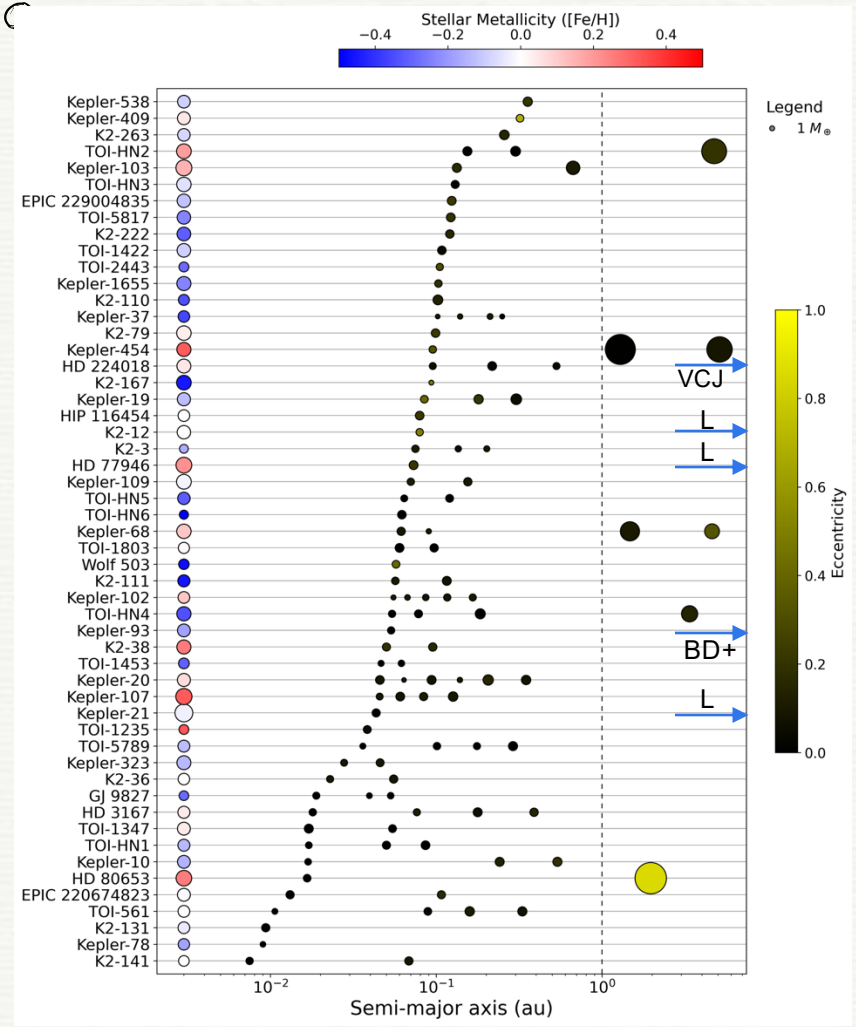


The case of Kepler-21



or





5/53 (4/8)
CJ systems

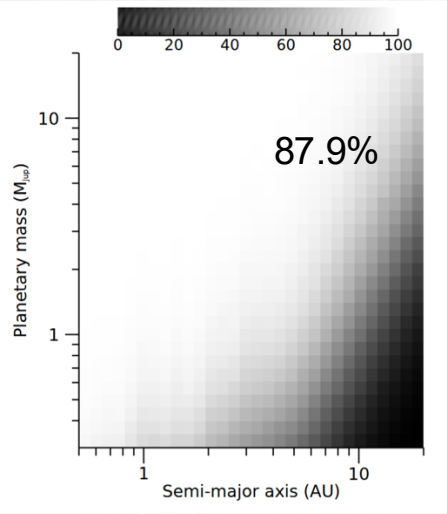
3 linear trends

1 “very” CJ

1 BD+

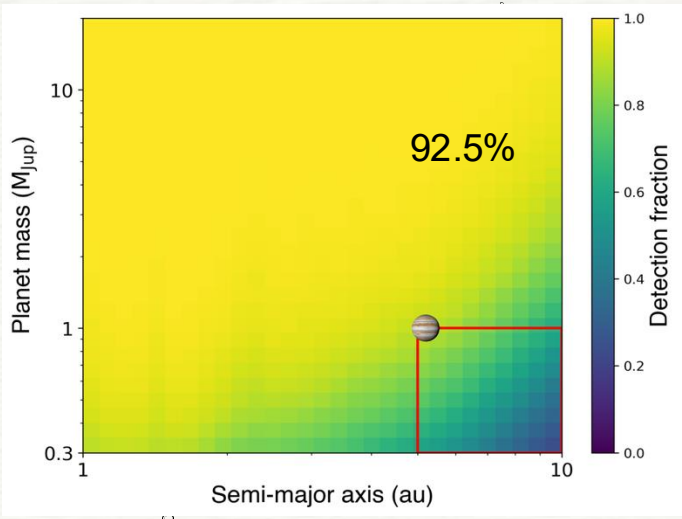
Completeness and occurrence rate

$f_{CJ|SP} = 9.2^{+7.7}_{-2.9}\%$

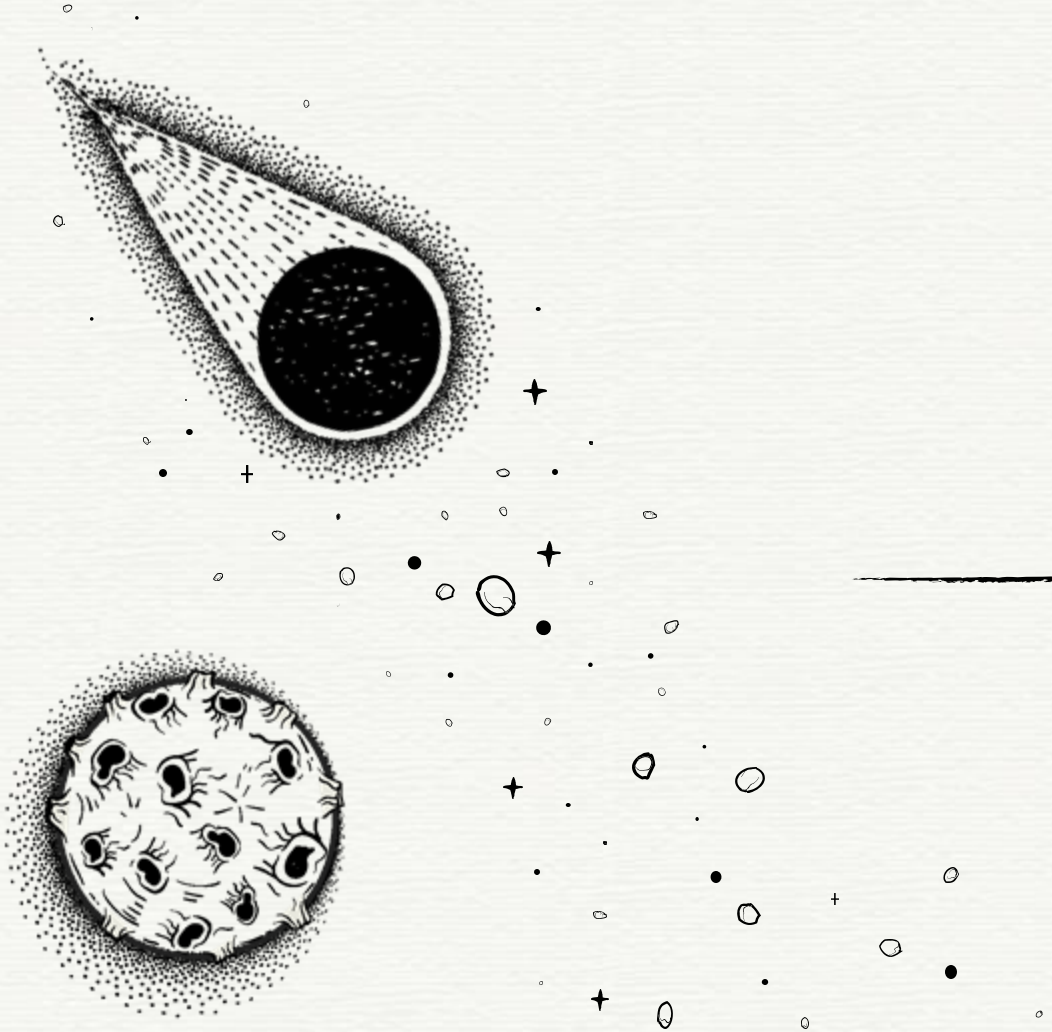


Bonomo et al. 2023

$f_{CJ|SP} = 10.2^{+6.0}_{-2.9}\%$



Naponiello et al. in prep



THANKS!

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