

SCAT Data Release 1: 1200 spectra of 900 transients

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CCAPP Symposium

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THE OHIO STATE UNIVERSITY
CENTER FOR COSMOLOGY AND
ASTROPARTICLE PHYSICS



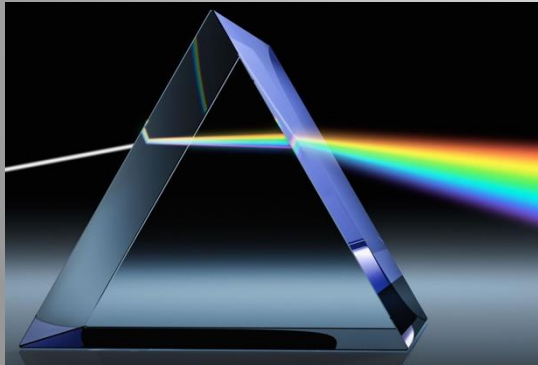
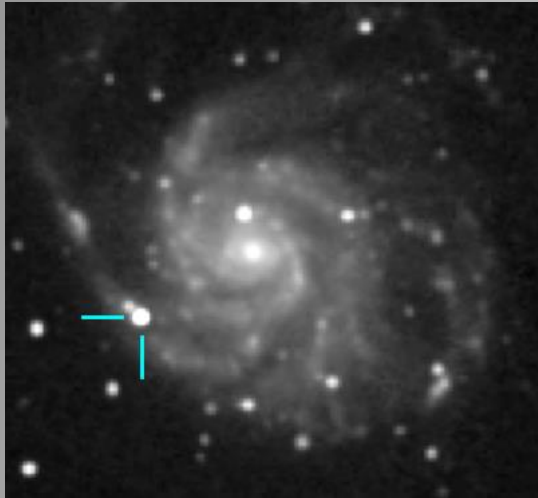
ASAS SN



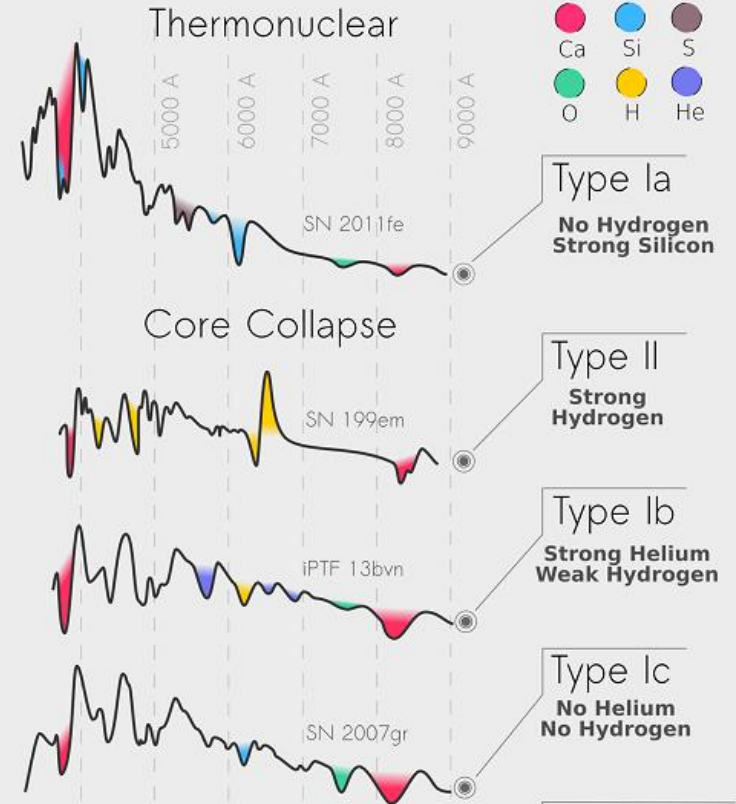
Pan-STARRS



atlas



Supernova Spectra



Spectroscopic Classification of Astronomical Transients (SCAT) survey



Leadership Team



Michael Tucker
CCAPP Fellow, Ohio State U



Ben Shappee
Professor, U Hawai'i Manoa



Katie Auchettl
Professor, U Melbourne



Mark Huber
Research Scientist, PanSTARRS



Tucker et al. 2022PASP..134I4502T

458 Type Ia SNe

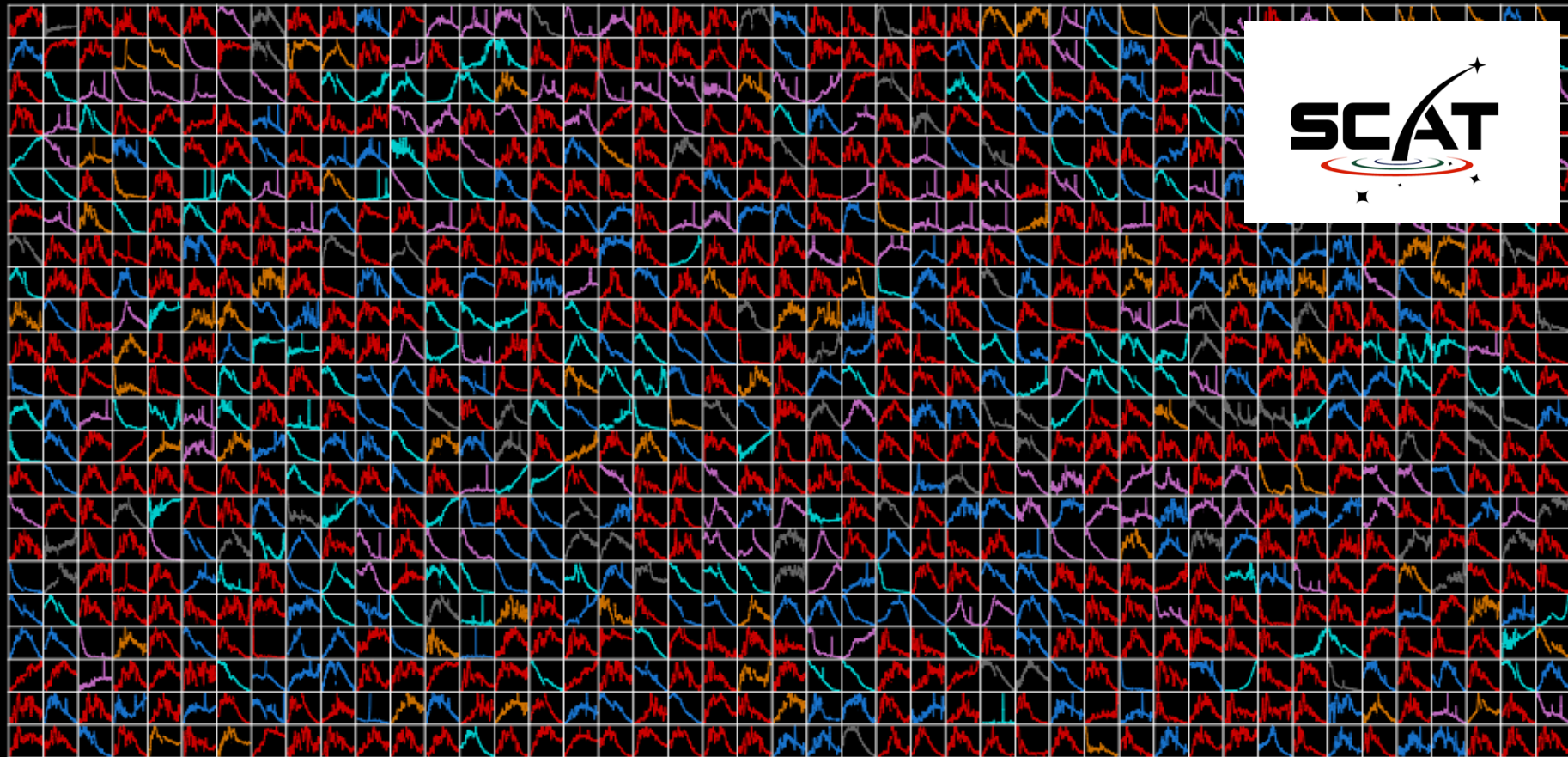
188 Type II SNe

71 Type Ibc SNe

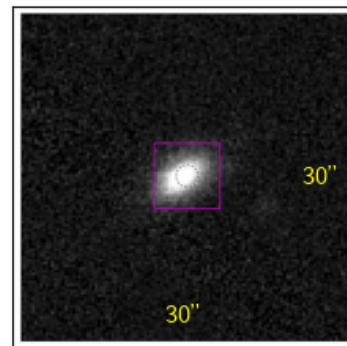
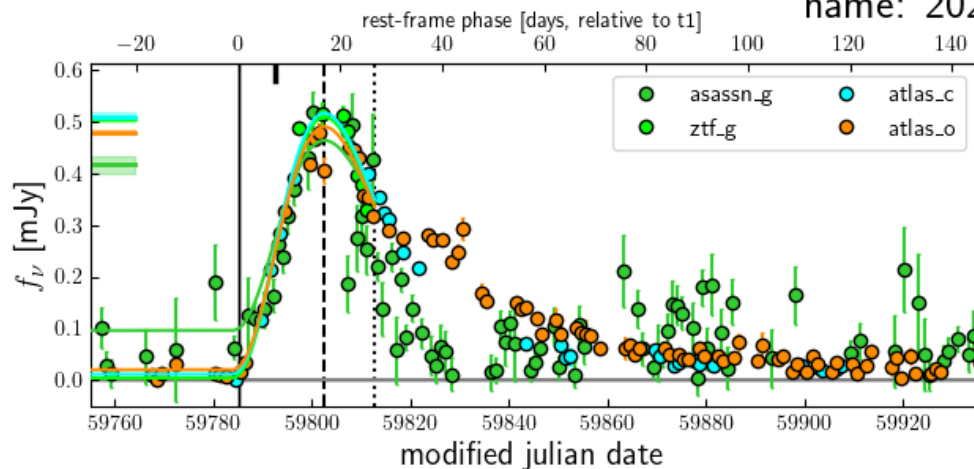
124 Nuclear (AGN, TDEs)

130 Stellar (CVs, XRBs, flares)

64 Other



name: 2022qcw



archival imaging
(panstarrs or dss)

Basic properties:

discovery_survey: ATLAS
discovery_name: ATLAS22xjg
ra, dec = 0.2475333117, -16.9523369058
mw_ebv = 0.0254 mag
SpType: Ia
subtype: Ia
redshift = 0.034250 +/- 0.00040
redshift source: narrow host lines
other names: PS22gvj

Host properties:

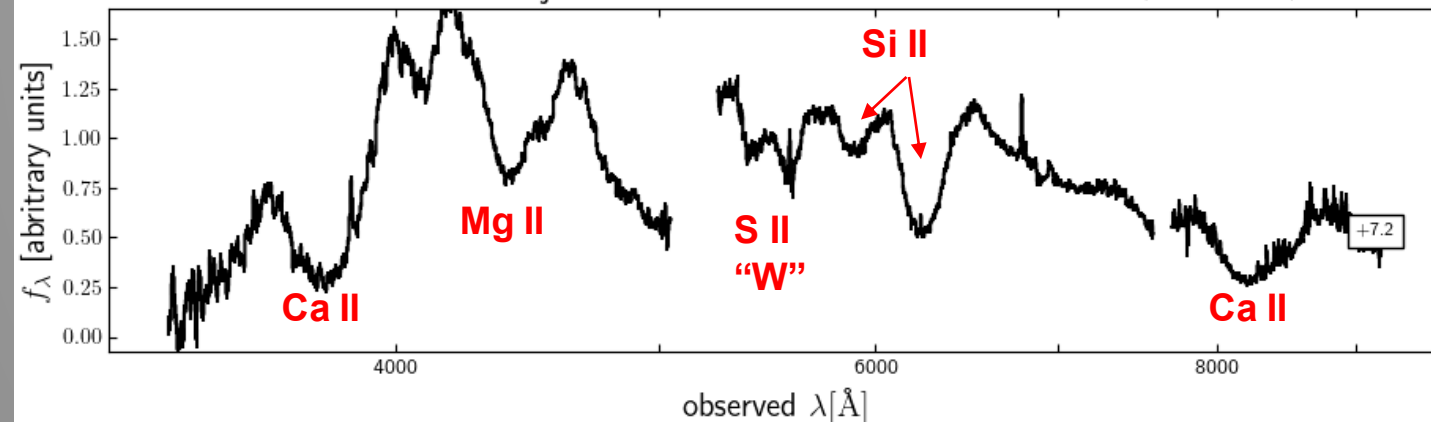
host name: WISEA J000059.43-165708.7
distance = 138.50 (-3.13, +3.07) Mpc
distance modulus = 35.707 (-0.050, +0.048) mag
r-band = 17.71 +/- 0.05 mag
absolute = -17.99 (-0.07, +0.07) mag
separation = 0.47 arcsec
projected = 0.32 kpc

Light curve properties:

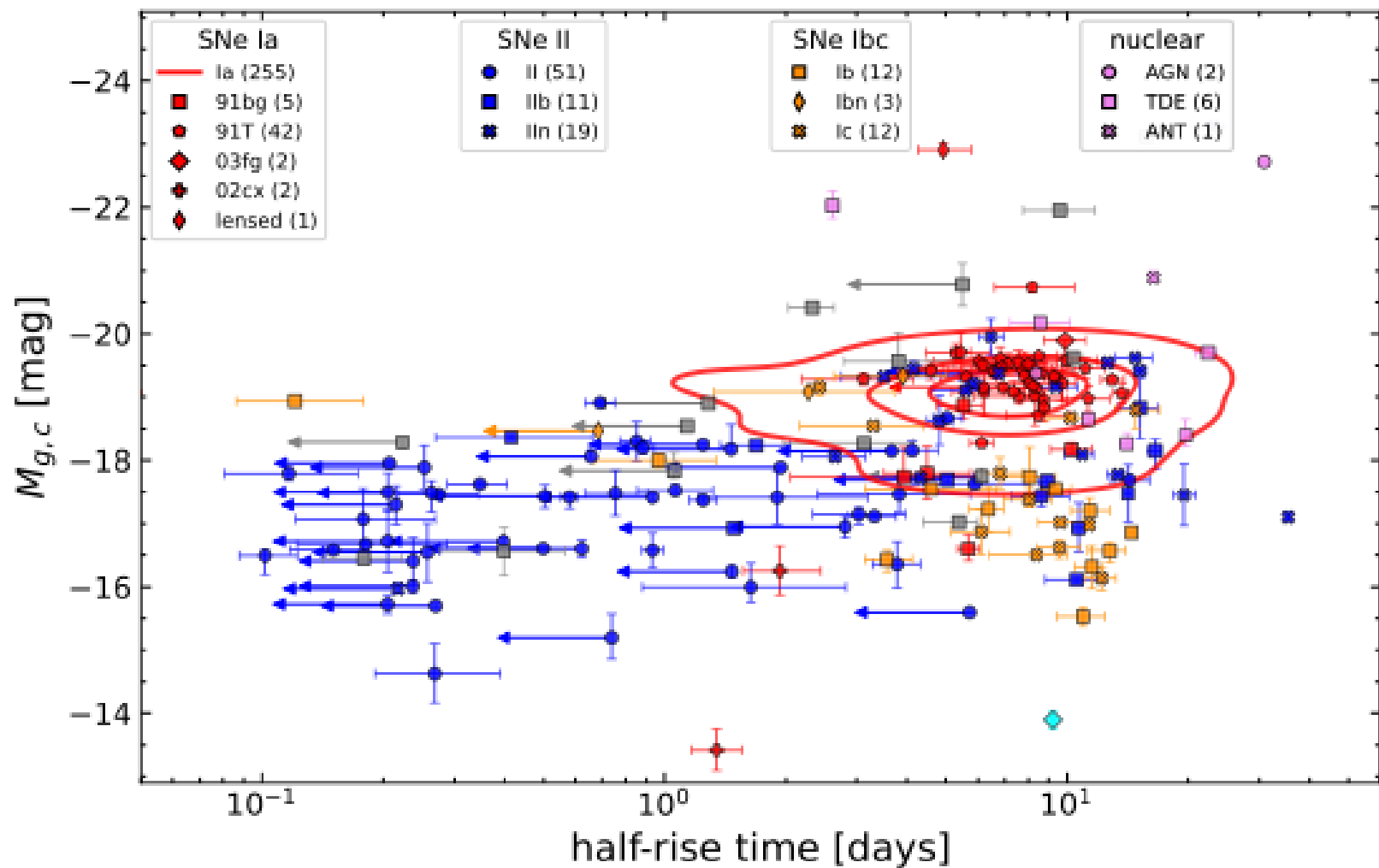
lc model = cpl
chi2/dof = 2.234
t1 [mjd] = 59785.146 (-119570.002, +0.284)
tpeak [mjd] = 59802.624 (-0.090, +0.080)
half-rise time = 8.72 (-0.60, +0.67) days

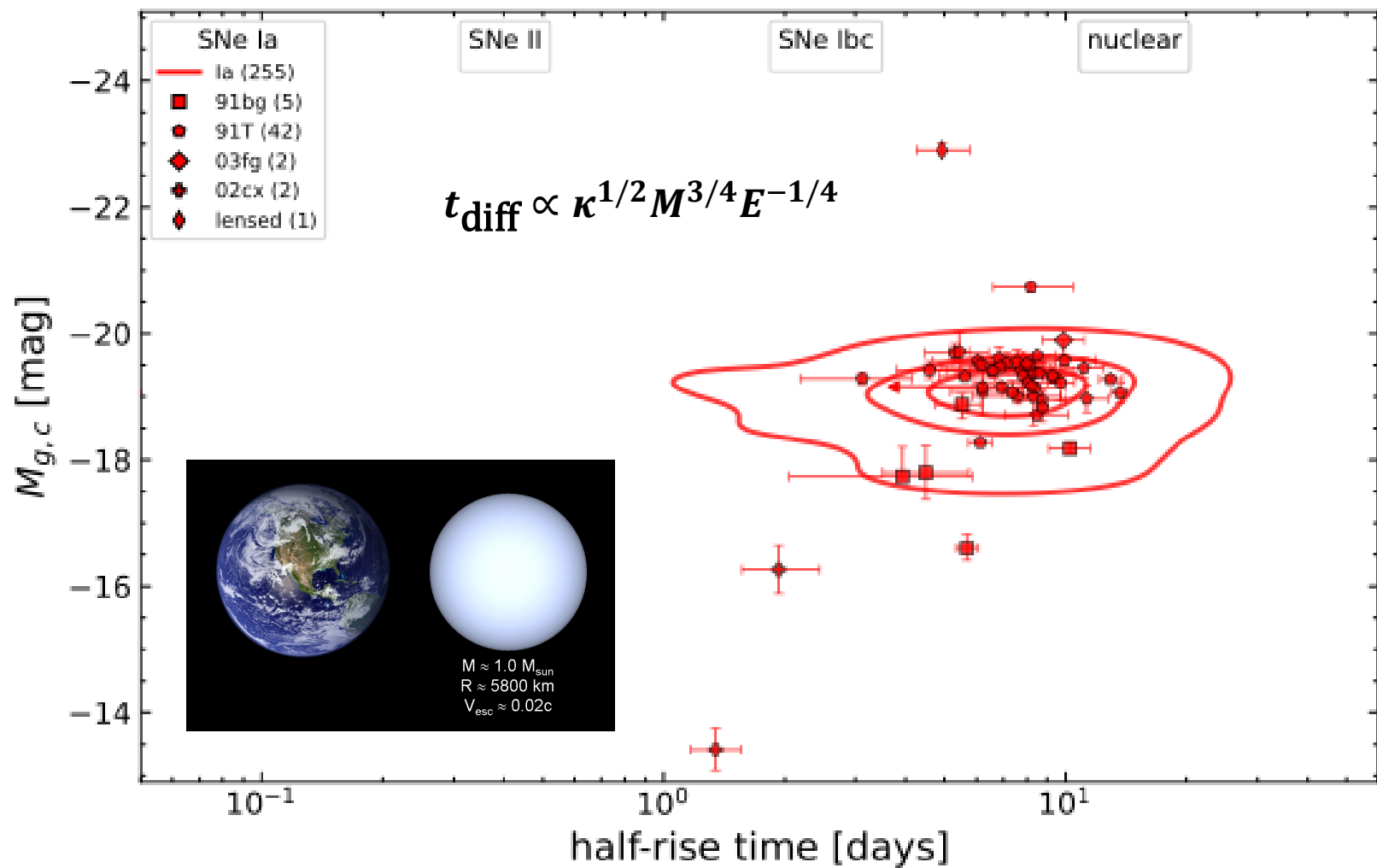
Peak mags: observed, absolute

17.48 (-0.05, 0.05) mag ; -18.32 (-0.00, -0.00) mag
17.14 (-0.01, 0.01) mag ; -18.66 (0.03, -0.04) mag
17.14 (-0.02, 0.02) mag ; -18.65 (0.03, -0.03) mag
17.22 (-0.01, 0.01) mag ; -18.55 (0.04, -0.04) mag

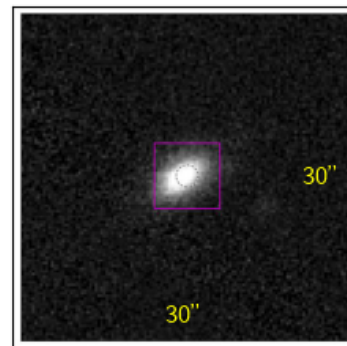
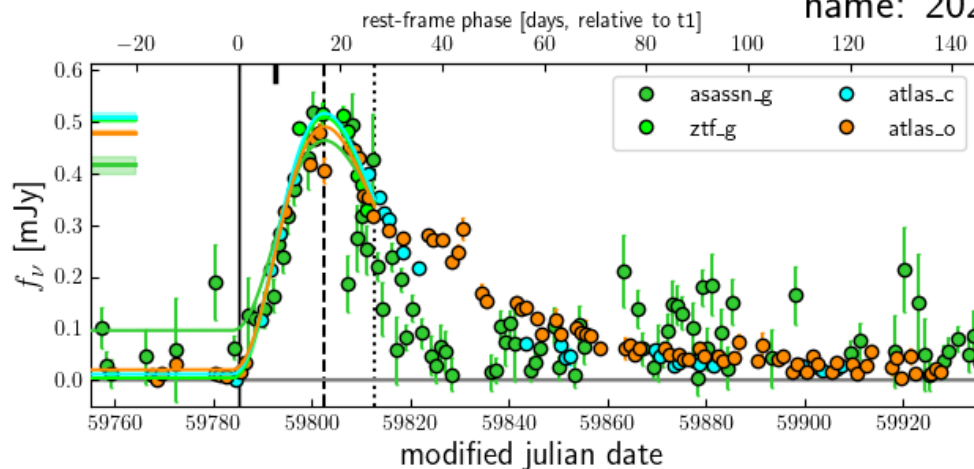


Peak absolute brightness





name: 2022qcw



archival imaging
(panstarrs or dss)

Basic properties:

discovery_survey: ATLAS
discovery_name: ATLAS22xjg
ra, dec = 0.2475333117, -16.9523369058
mw_ebv = 0.0254 mag
SpType: Ia
subtype: Ia
redshift = 0.034250 +/- 0.00040
redshift source: narrow host lines
other names: PS22gvj

Host properties:

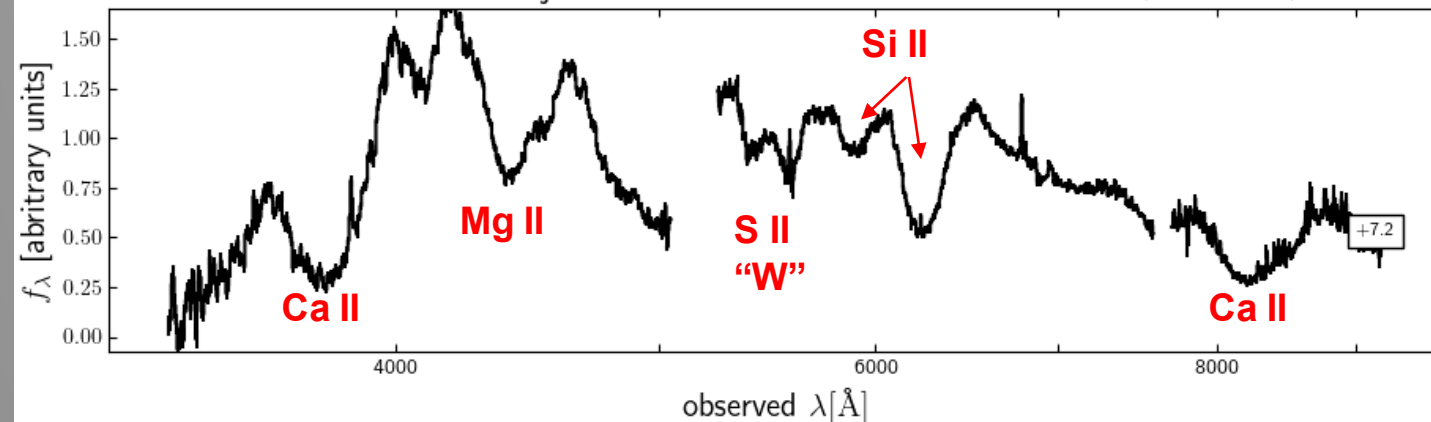
host name: WISEA J000059.43-165708.7
distance = 138.50 (-3.13, +3.07) Mpc
distance modulus = 35.707 (-0.050, +0.048) mag
r-band = 17.71 +/- 0.05 mag
absolute = -17.99 (-0.07, +0.07) mag
separation = 0.47 arcsec
projected = 0.32 kpc

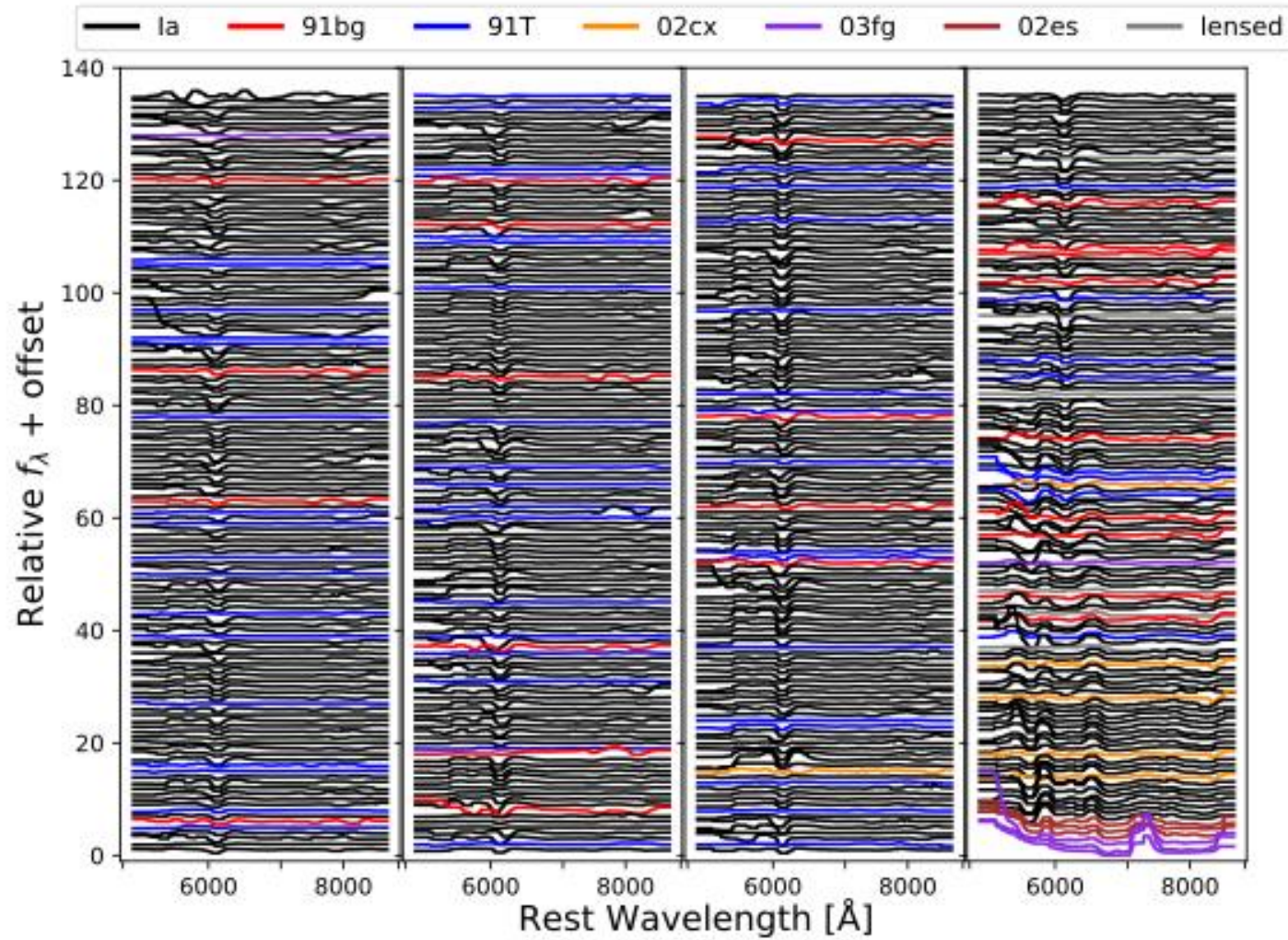
Light curve properties:

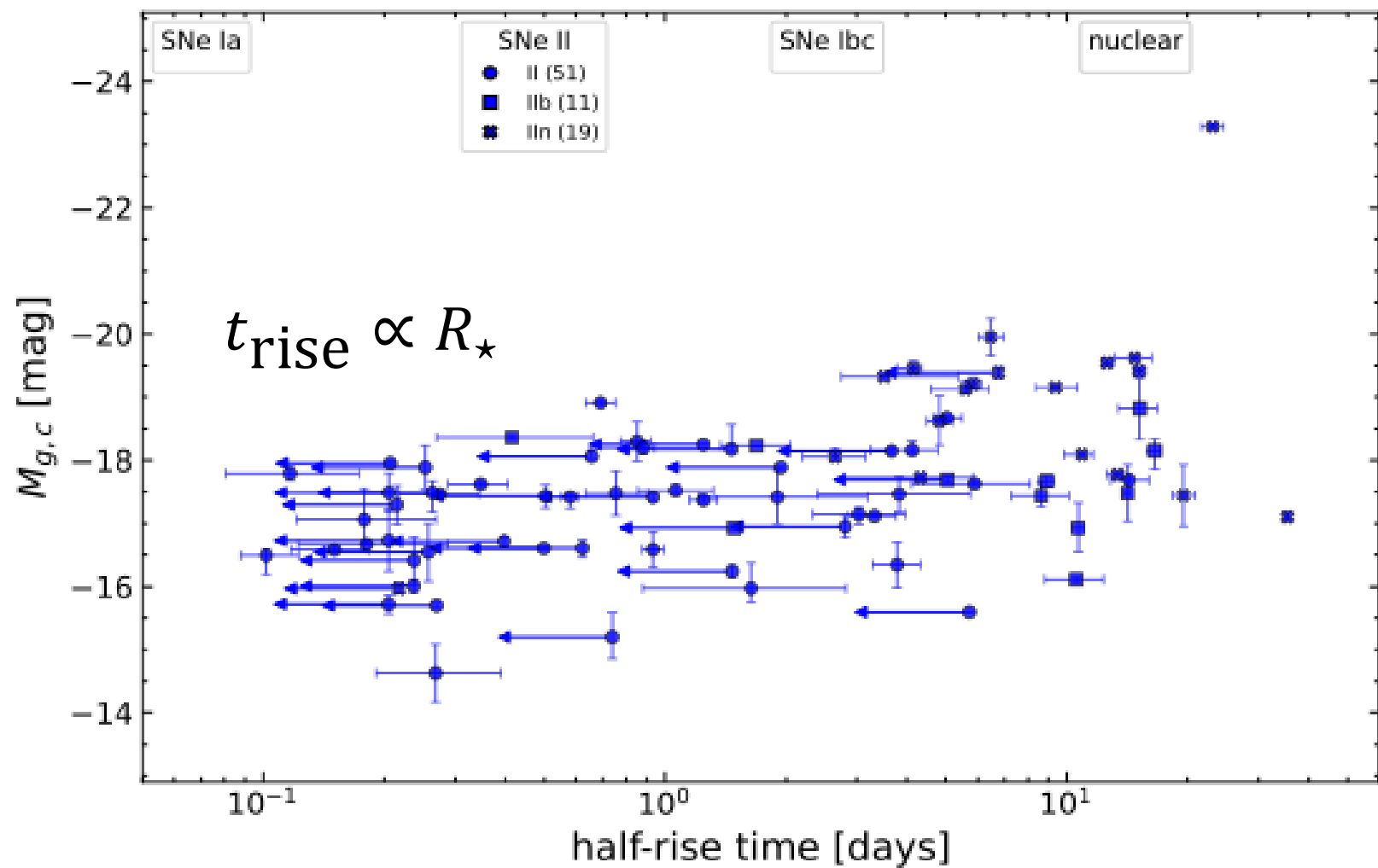
lc model = cpl
chi2/dof = 2.234
t1 [mjd] = 59785.146 (-119570.002, +0.284)
tpeak [mjd] = 59802.624 (-0.090, +0.080)
half-rise time = 8.72 (-0.60, +0.67) days

Peak mags: observed, absolute

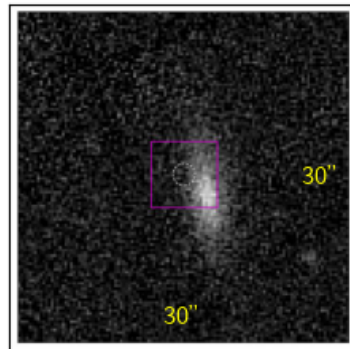
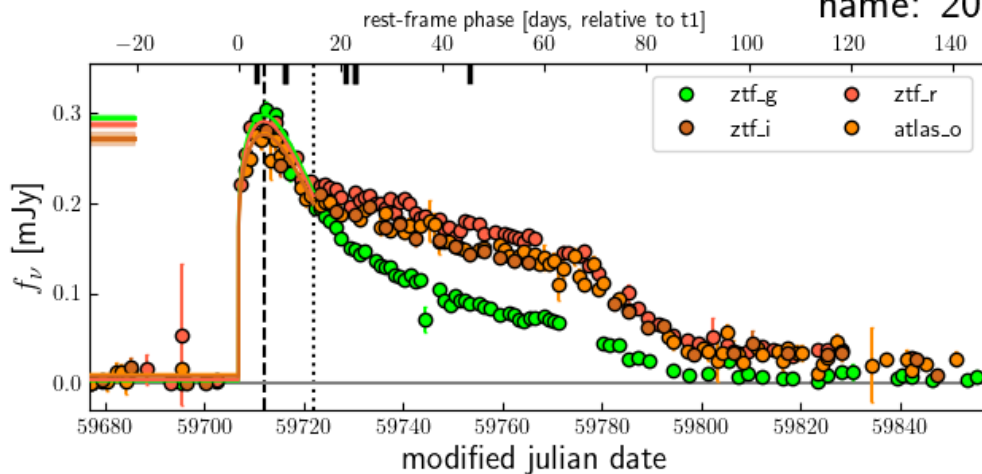
17.48 (-0.05, 0.05) mag ; -18.32 (-0.00, -0.00) mag
17.14 (-0.01, 0.01) mag ; -18.66 (0.03, -0.04) mag
17.14 (-0.02, 0.02) mag ; -18.65 (0.03, -0.03) mag
17.22 (-0.01, 0.01) mag ; -18.55 (0.04, -0.04) mag







name: 2022jps



archival imaging
(panstarrs or dss)

Basic properties:

discovery_survey: ATLAS
discovery_name: ATLAS22ntc,
ra, dec = 242.560208, 36.214281
mw_ebv = 0.022 mag
SpType: II
subtype: II
redshift = 0.026218 +/- 0.00408
redshift source: snid
other names: ZTF22aajjawt, PS22eez, Gaia22cis

Host properties:

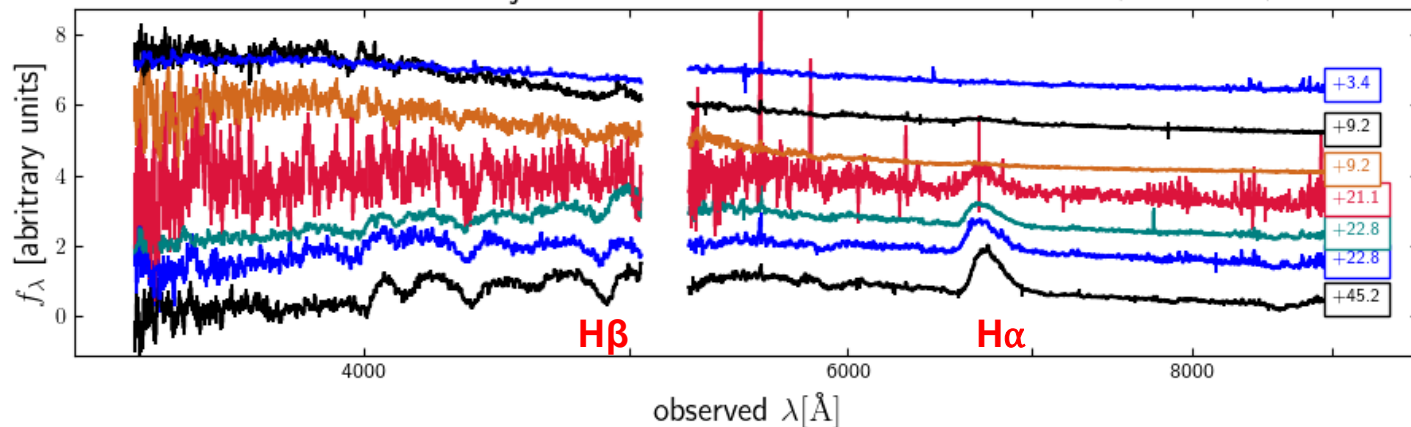
host name: WISEA J161014.25+361249.2
distance = 97.28 (85.68, 115.72) Mpc
distance modulus = 34.940 (34.664, 35.317) mag
r-band = 18.98 +/- 0.36 mag
absolute = -15.96 (0.52, 0.46) mag
separation = 2.88 arcsec
projected = 1.36 kpc

Light curve properties:

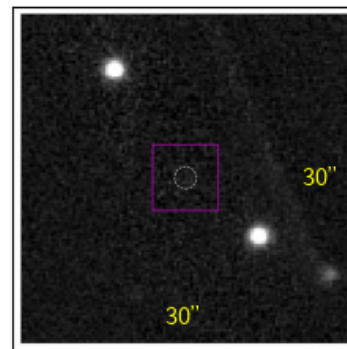
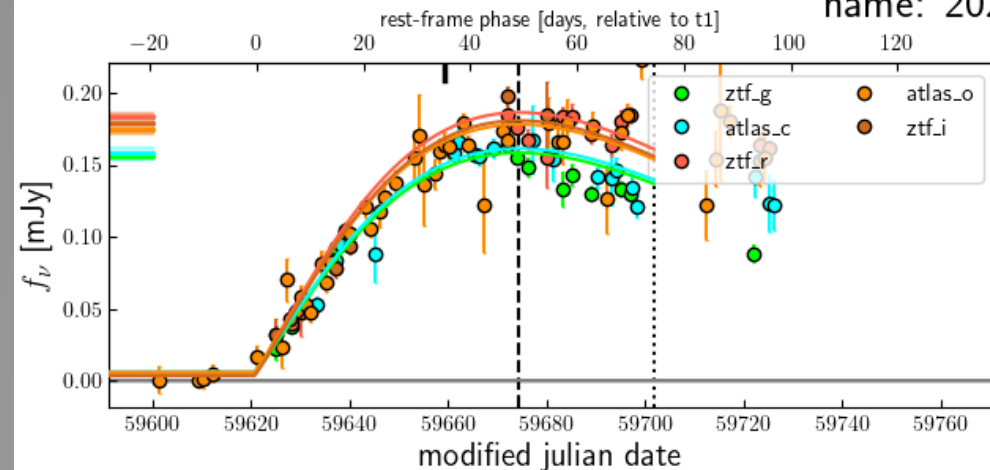
lc model = cpl
chi2/dof = 0.739
t1 [mjd] = 59706.945 (0.460, 0.260)
tpeak [mjd] = 59712.095 (0.130, 0.180)
half-rise time = 0.01 (0.00, 0.03) days

Peak mags: observed, absolute

17.73 (-0.01, 0.01) mag ; -17.29 (0.37, -0.26) mag
17.76 (-0.01, 0.01) mag ; -17.24 (0.37, -0.26) mag
17.84 (-0.01, 0.01) mag ; -17.16 (0.36, -0.26) mag
17.83 (-0.03, 0.03) mag ; -17.15 (0.35, -0.25) mag



name: 2022dhp



Basic properties:

discovery_survey: ATLAS
 discovery_name: ATLAS22hiz,
 ra, dec = 107.927208, 28.572631
 mw_ebv = 0.0746 mag
 SpType: II
 subtype: IIn
 redshift = 0.084000 +/- 0.00108
 redshift source: narrow host lines
 other names: ZTF22aabxuf, Gaia22bvg, PS23kix

Host properties:

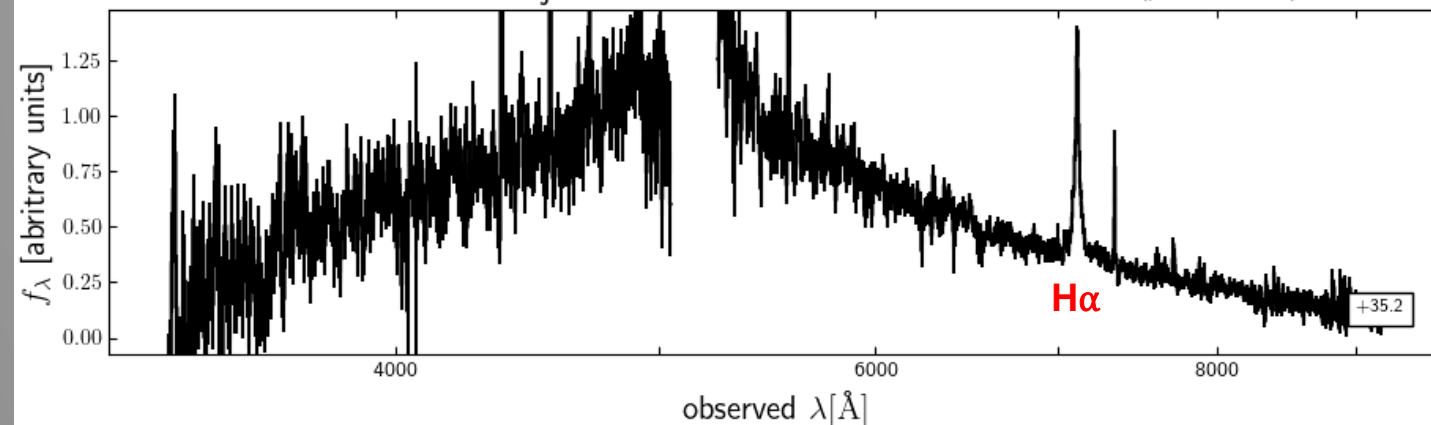
host name: decals_dr9_9906631780729646
 distance = 361.76 (-6.95, +7.04) Mpc
 distance modulus = 37.792 (-0.042, +0.042) mag
 r-band = 22.71 +/- 0.09 mag
 absolute = -15.08 (-0.10, +0.10) mag
 separation = 0.41 arcsec
 projected = 0.72 kpc

Light curve properties:

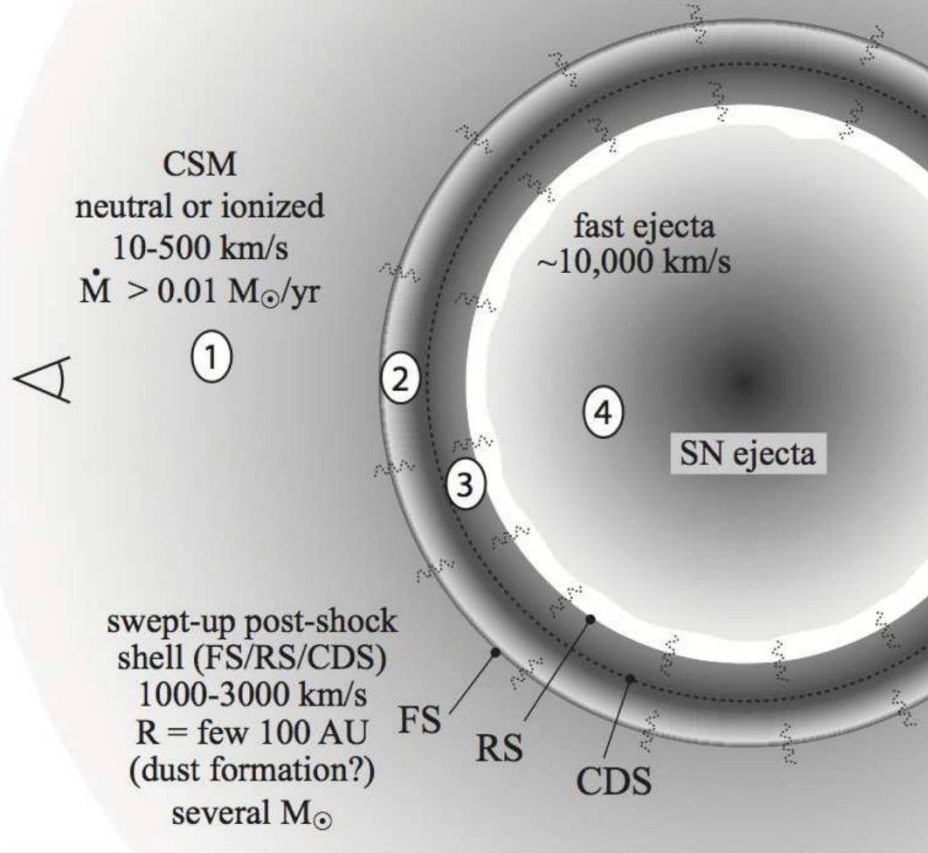
lc model = cpl
 chi2/dof = 1.637
 t1 [mjd] = 59621.192 (-119241.154, +1.370)
 tpeak [mjd] = 59674.537 (-0.910, +0.990)
 half-rise time = 14.75 (-1.59, +1.50) days

Peak mags: observed, absolute

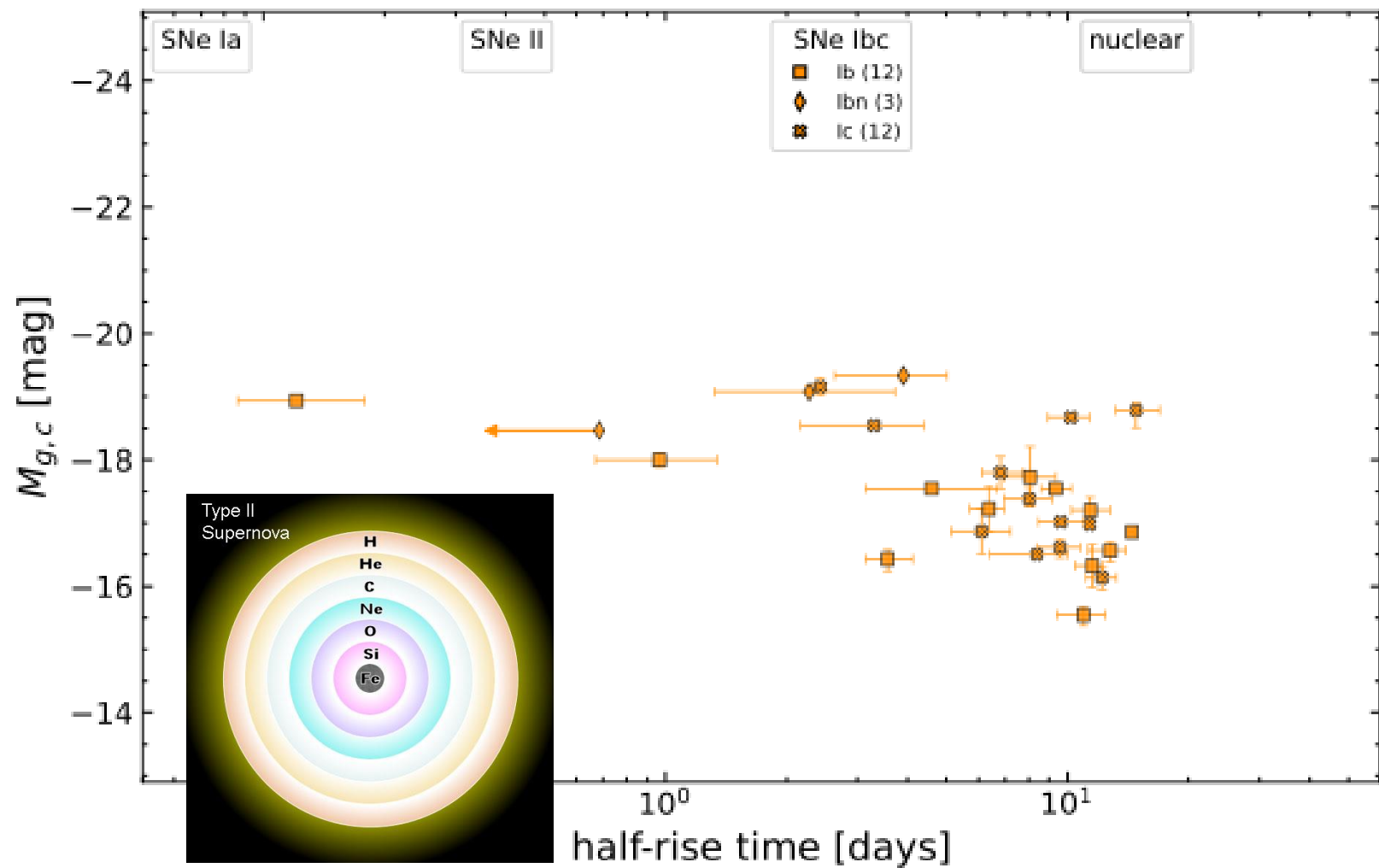
18.44 (-0.01, 0.01) mag ; -19.63 (0.03, -0.03) mag
 18.42 (-0.03, 0.03) mag ; -19.61 (0.01, -0.01) mag
 18.25 (-0.01, 0.01) mag ; -19.73 (0.03, -0.03) mag
 18.31 (-0.02, 0.02) mag ; -19.66 (0.02, -0.02) mag
 18.28 (-0.04, 0.04) mag ; -19.66 (0.00, -0.00) mag



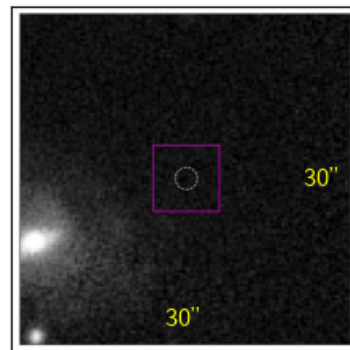
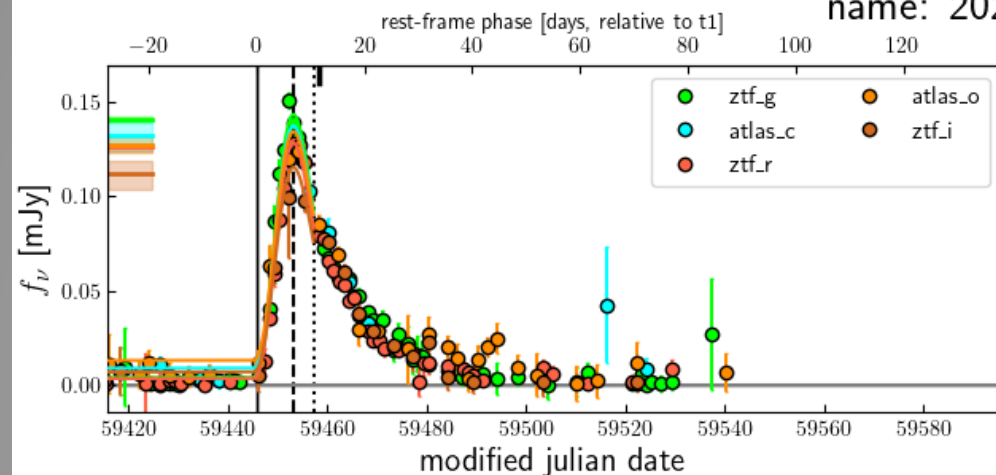
Basic Picture - Type II_n or Ib_n



Smith et al. 2017



name: 2021wvg



Basic properties:

discovery_survey: ZTF
discovery_name: ZTF21abuvury,
ra, dec = 269.800770968, 68.8840870664
mw_ebv = 0.0402 mag
SpType: lbc
subtype: lbn
redshift = 0.085000 +/- 0.00108
redshift source: narrow host lines
other names: ATLAS21bgvu, PS21jos

Host properties:

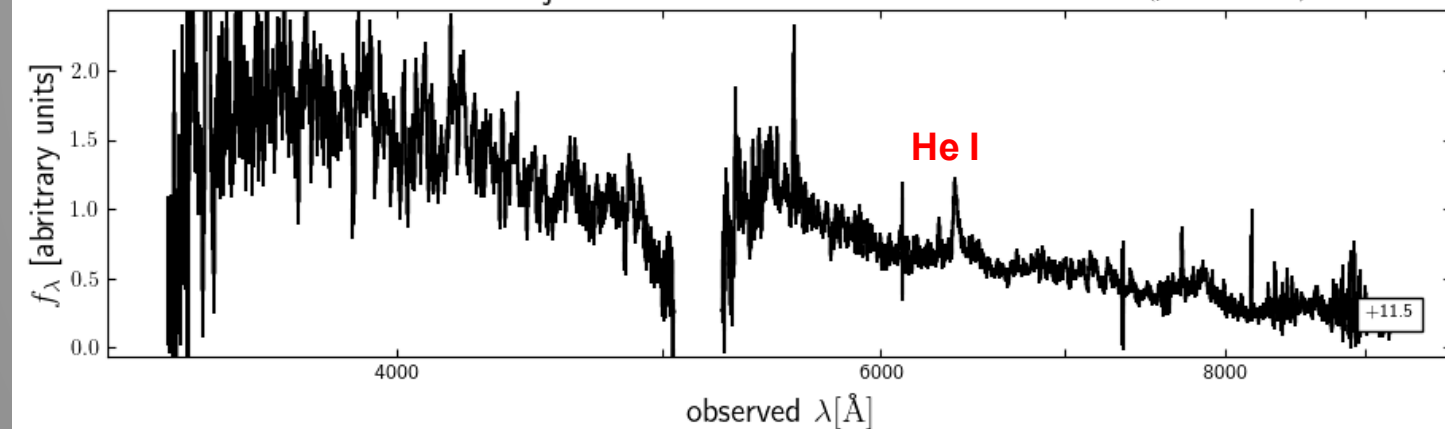
host name: WISEA J175914.81+685257.5
distance = 360.74 (-7.26, +7.14) Mpc
distance modulus = 37.786 (-0.044, +0.043) mag
r-band = 16.61 +/- 0.13 mag
absolute = -21.18 (-0.13, +0.13) mag
separation = 15.13 arcsec
projected = 26.45 kpc

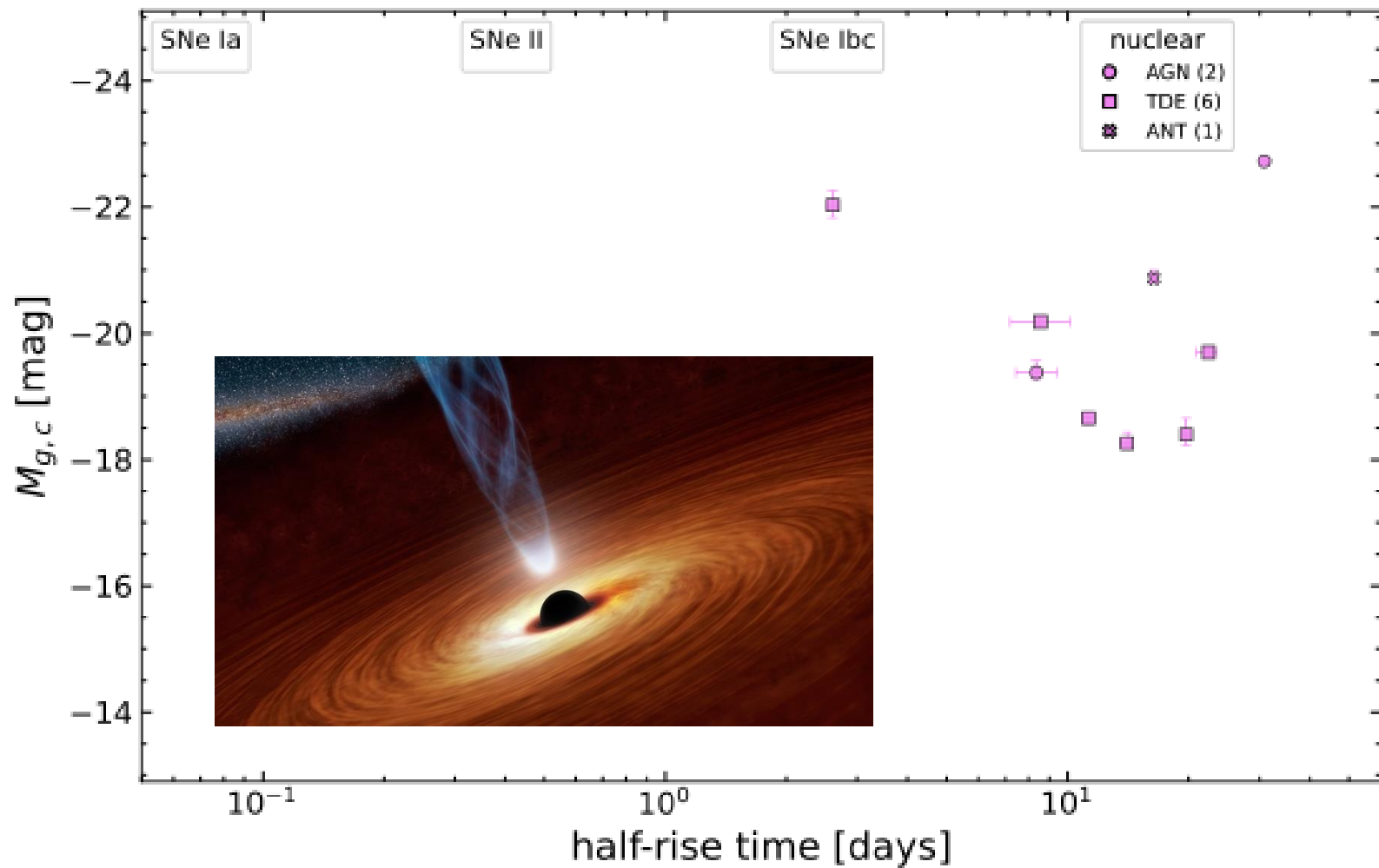
Light curve properties:

lc model = cpl
chi2/dof = 0.559
t1 [mjd] = 59445.831 (-118891.249, +0.674)
tpeak [mjd] = 59453.272 (-0.090, +0.110)
half-rise time = 3.91 (-1.28, +1.11) days

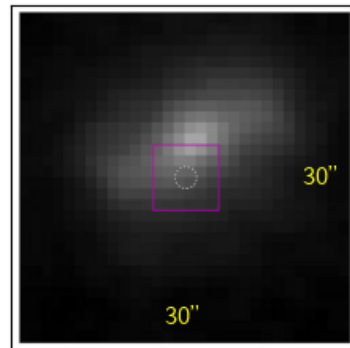
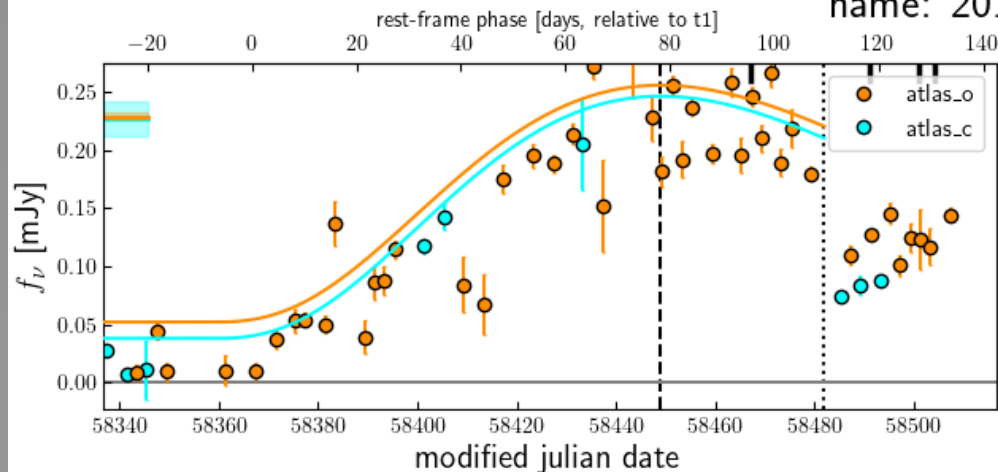
Peak mags: observed, absolute

18.54 (-0.01, 0.01) mag ; -19.39 (0.03, -0.03) mag
18.63 (-0.08, 0.07) mag ; -19.28 (-0.03, 0.02) mag
18.66 (-0.02, 0.02) mag ; -19.23 (0.02, -0.03) mag
18.69 (-0.04, 0.03) mag ; -19.19 (0.01, -0.01) mag
18.82 (-0.08, 0.07) mag ; -19.05 (-0.04, 0.03) mag





name: 2018ido



archival imaging
(panstarrs or dss)

Basic properties:

discovery_survey: ASAS-SN
discovery_name: ASASSN-18zp,
ra, dec = 18.86437, -31.39868
mw_ebv = 0.0253 mag
SpType: nuclear
subtype: AGN
redshift = 0.053100 +/- 0.00030
redshift source: NED or known

Host properties:

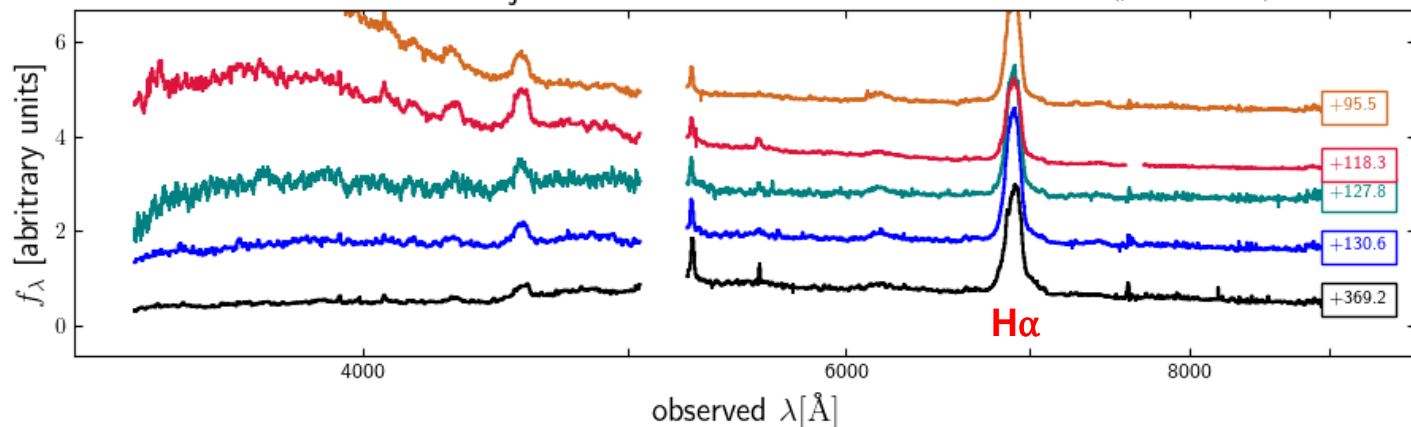
host name: WISEA J011527.40-312352.1
distance = 215.85 (212.09, 219.76) Mpc
distance modulus = 36.671 (36.633, 36.710) mag
r-band = nan +/- nan mag
absolute = nan (nan, nan) mag
separation = 3.18 arcsec
projected = 3.33 kpc

Light curve properties:

lc model = cpl
chi2/dof = 5.851
t1 [mjd] = 58366.654 (2.444, 2.430)
tpeak [mjd] = 58449.014 (1.430, 1.570)
half-rise time = 41.16 (5.03, 5.21) days

Peak mags: observed, absolute

18.11 (-0.08, 0.08) mag ; -18.65 (-0.04, 0.04) mag
18.13 (-0.02, 0.02) mag ; -18.60 (0.02, -0.02) mag



Peak absolute brightness

