References

Nao Suzuki

ABSTRACT

This is a summary of our research related papers. ApJ styled reference is created for tex practice.

Review

1. Review Articles

- Optical Spectra of Supernovae (filippenko97a) Filippenko (1997)
- Type IA Supernovae and the Hubble Constant (branch98a, #131: Mar 17, 2009) Branch (1998)

2. Projenitor

2.1. Projenitor : Observation I white dwarf binary

- ★ The (Double) White Dwarf Binary SDSS 1257+5428 (Kulkarni & van Kerkwijk 2010)
- ★ The Double-degenerate Nucleus of the Planetary Nebula TS 01: A Close Binar y Evolution Showcase (Tovmassian et al. 2010)

2.2. Projenitor : Observation II direct companion search

2.3. Projenitor : Theory

- ★ Young and Massive Binary Progenitors of Type Ia Supernovae and Their Circumstellar Matter

Dust Extinction

3. Dust Review

- Interstellar Dust Grains (Draine 2003, #451, 5/18/10, draine03a)

- Formation and destruction of dust grains (Salpeter 1977, #193, 5/20/10, salpeter77a)

4. Dust Grain Studies

- ★★ Dust Evaporation in Protostellar Cores (Lenzuni et al. 1995)
  Sublimation (phase transition from solid to gas) and chemical sputtering of dust is studied. According to their model, dust grains evapolates at the temperatures of : Carbon $\sim$ 1100K, Silicates $\sim$ 1300K, Aluminum Oxide $\sim$ 1720K.

5. Dust in Circumsterllar Medium (CSM)

5.1. Dust Model

- Low R_V from Circumstellar Dust around Supernovae (Goobar 2008)
  Ariel runs a Monte-Carlo simulation on the size of the dust particles with LMC like dust

- Dust around Type Ia Supernovae (Wang 2005, #39, 5/14/10, wang05b)
  Lifan's Dust model paper.

5.2. Time Variable Na DI line

- A Second Case of Variable Na I D Lines in a Highly Reddened Type Ia Supernova (Blondin et al. 2009)
  SN2006X case is discussed in detail.

- Variable Sodium Absorption in a Low-extinction Type Ia Supernova (Simon et al. 2009)
  Time variable Na ID line from SN2007le (Keck & Hobby-Eberly Telescope) observation (-5 days to +90 days) is reported. They note Ca II H & K didn't move, thus CSM origin is suggested. Unlike other SNe, the color is not too red. E(B-V)=0.27 mag.

- Circumstellar Shells in Absorption in Type Ia Supernovae (Borkowski et al. 2009)
  A theory paper to predict the variable Na ID line.

- Detection of Circumstellar Material in a Normal Type Ia Supernova (Patat et al. 2007, #69, 6/2/10)
  Time Variable Na I line is discussed with ESO data on SN2006X

5.3. CSM interacting SNe

- Novae as a Mechanism for Producing Cavities around the Progenitors of SN 2 002ic and Other Type Ia Supernovae (Wood-Vasey & Sokoloski 2006)
  A model of recurrent nova projenitor forms CSM.

- Nearby Supernova Factory Observations of SN 2005gj: Another Type Ia Supern ova in a Massive Circumstellar Envelope (Aldering et al. 2006)

- SN 2003du: Signatures of the Circumstellar Environment in a Normal Type Ia Supernova? (Gerardy et al. 2004, #60, 6/2/10, gerardy04a)
  SN2003du observation by Hobby-Eberly Telescope is reported. High-Velocity CaII line, velocity of 18,000 km/s, is reported (CaII IR triplet around 8000A), and it is similar to SN2000cx and SN2001el.

5.4. Planetary Nebula

- The PN.S Elliptical Galaxy Survey: Data Reduction, Planetary Nebula Catalog, and Basic Dynamics for NGC 3379 (M105)(Douglas et al. 2007)
  The detection of 214 Planetary Nebulae is reported (191 in NGC3379 and 23 in NGC3384). NGC3379 is M105 and elliptical (S0) galaxy.

- Indications of a Large Fraction of Spectroscopic Binaries among Nuclei of Planetary Nebulae (De Marco et al. 2004, #48, 5/21/10, demarco04a)
  Abstract: Previous work indicates that about 10% of planetary-nebula nuclei (PNNi) are photometrically variable short-period binaries with periods of hours to a few days. These systems have most likely descended from common-envelope (CE) interactions in initially much wider binaries. Population-synthesis studies suggest that these very close pairs could be the short-period tail of a much larger post-CE binary population with periods of up to a few months. We have initiated a radial-velocity (RV) survey

of PNNi with the WIYN 3.5 m telescope and Hydra spectrograph, which is aimed at discovering these intermediate-period binaries. We present initial results showing that 10 out of 11 well-observed PNNi have variable RVs, suggesting that a significant binary population may be present. However, further observations are required because we have as yet been unable to fit our sparse measurements with definite orbital periods and because some of the RV variability might be due to variations in the stellar winds of some of our PNNi.

- Detection, Photometry, and Slitless Radial Velocities of 535 Planetary Nebulae in the Flattened Elliptical Galaxy NGC 4697 (Méndez et al. 2001, #67, 5/25/10)
  535 PNe in an elliptical galaxy by VLT observation is reported.

- Theoretical models of the planetary nebula populations in galaxies: The ISM oxygen abundance when star formation stops (Richer et al. 1997)
  An attempt to model PNe in galaxies so that they can reproduce ISM [O/Fe] chemical abundances.

6. Dust in Interstellar Medium of the host galaxies I : Star Forming Galaxies

7. Dust in Interstellar Medium of the host galaxies II: Early Type Galaxies

- ★★ Galactic Winds (Veilleux et al. 2005, #191, 5/18/10, veilleux05a)
  Review of modern understanding of "Galactic Winds" from both observations and theory

- ★ Dust in the Cores of Early-Type Galaxies (van Dokkum & Franx 1995, #184, 5/20/10, vandokkum95a)
  Using WFPC2 on HST, dust is detected in 31 out of 64 galaxies, although the sample is biased against the detection of dust.

- ★★ Galactic Wind (Mathews & Baker 1971, #397, 5/20/10, mathews71a) The concept of "Galactic Wind" by supernovae is introduced

8. Host Galaxy Dust (ISM) in general

- Evolution of Dust Extinction and Supernova Cosmology (Totani & Kobayashi 1999, #25, 5/3/10, totani99a)

- Do Type Ia supernovae prove $\Lambda > 0$? (Rowan-Robinson 2002)

9. Dust in Intracluster Medium

- The kinematics of intracluster planetary nebulae and the on-going subclust er merger in the Coma cluster core (Gerhard et al. 2007)
  Studies of Intracluster Planetray Nebulae in the Coma Cluster. 37 PNe are identified by Subaru (FOCAS).

- Candidates for Intracluster Planetary Nebulae in the Virgo Cluster Based on the Suprime-Cam Narrow-Band Imaging in [O III] and Hα (Okamura et al. 2002)
  Intracluster 38 Planetary Nebulae candidates in Virgo Cluster are reported using Suprime-Cam

10. IGM Dust

11. Host Galaxy vs SNIa

11.1. Observation

- ★ Luminosity Functions of Type Ia Supernovae and Their Host Galaxies from the S loan Digital Sky Survey (Yasuda & Fukugita 2010)
  Fig 12 : Luminosity (galaxy) vs. Number of SNe / galaxy. Very interesting results on rates. SNe rates per galaxy is proportinal to the luminosity of galaxies for 3 orders of magnitudes.
  Fig 17 : SN distance from host galaxy center vs. SN color (x1) : At the very center, there exist some red color SNe but other than that, we don't see any clear trend. For stretch (x1), we don't see any trend in distance.

- The Local Hosts of Type Ia Supernovae (Neill et al. 2009)

- Supernovae in Early-Type Galaxies: Directly Connecting Age and Metallicity with Type Ia Luminosity (Gallagher et al. 2008, #32:4/30/10, gallagher08a)

- ★★★ Rates and Properties of Type Ia Supernovae as a Function of Mass and Star For mation in Their Host Galaxies (Sullivan et al. 2006, #147:4/30/10,sullivan06a)

For the first time, correlation between stretch and SFR is shown clearly. Passive galaxies with no star formation preferntially host faster declining/dimmer SNeIa while brighter events are found in systems with ongoing star formation.

- Chemistry and Star Formation in the Host Galaxies of Type Ia Supernovae (Gallagher et al. 2005, #67:4/30/10, gallagher05a)

- ★★ The Hubble diagram of type Ia supernovae as a function of host galaxy morphology (Sullivan et al. 2003, #76, 4/30/10, sullivan03a)

11.2. Theory

12. SNIa Rates

12.1. SNIa Rates : Observation

- ★ The Type Ia Supernova Rate at z 0.5 from the Supernova Legacy Survey (Neill et al. 2006, #76:4/30/10,neill06a)
  2 Years of CFHT SNLS data (73 spectroscopically confirmed SNeIa) to give SNIa rates at $< z >$=0.47. Fig 11 component model is discussed. Prompt component (B), and delayed component (A) is fitted to the observed rates.

12.2. SNIa Rates : Theory/Model

- The Role of Type Ia Supernovae in Chemical Evolution. I. Lifetime of Type Ia Supernovae and Metallicity Effect (Kobayashi & Nomoto 2009)
  Chemical evolution is considered in terms of single degenerate scinario (SD). The result reproduces metal distribution well.
  - Fig 3a : Projenitor Mass vs. SNIa rates : the lower the mass, the higher the rates.
  - Fig 3b : Life Time of SNIa vs. SNIa rates : the shorter the life time, the higher the rates.
  - Fig 15 : z vs. SNIa rates for SD. 2 component model (Spirals and Ellipticals).
  - Fig 16 : z vs. SNIa rates for DD (double degenerate) .

- ★★ Two populations of progenitors for Type Ia supernovae? (Mannucci et al. 2006, #152:4/30/10,mannucci06a)

- ★★★ The supernova rate per unit mass (Mannucci et al. 2005, #204:4/30/10,mannucci05a)

- ★★ Low-Metallicity Inhibition of Type IA Supernovae and Galactic and Cosmic Chem ical Evolution (**?**, #152, 5/4/10, kobayashi98a)
  The punch line is that SNeIa happens at the [Fe/H] > -1. This paper makes the following predictions:
  - SNeIa are not found in the low iron abundance environment such as dwarf galaxies and outskirts of spirals
  - SNeIa rates drops

13. Supernova Ia with Cepheid distances

13.1. SN1999by : NGC2841

- The Luminosity of SN 1999by in NGC 2841 and the Nature of "Peculiar" Type Ia Supernovae (garnavich04a) Garnavich et al. (2004)

14. Effect from Gravitational Lensing

- A strategy for finding gravitationally lensed distant supernovae (Sullivan et al. 2000, sullivan00a)
  Gravitatoinally lensed high-z supernovae is discussed. Predicts a high probability of seeing a supernova in a single return visit with HST/ACS and NGST (James Webb). The number of magnitude ampliflified SNe peaks at z=0.7 (Figure 3). It also predicts high probability of finding 1-3 SNe in lensed cluster, and as a demo, they report a SNe candidate discovery in AC114 at z=0.31 from HST archive data .

- Reducing the gravitational lensing scatter of type Ia supernovae without introducing any extra bias Jönsson et al. (2009, #2 4/26/10, jonsson09a)
  "Bias arising from gravitational lensing correlations of individual SNeIa is negligible

for current and next generation surveys and the scatter from lensing can be reduced by approximately a factor of 2."

- Prospects and pitfalls of gravitational lensing in large supernova surveys Jönsson et al. (2008, #6 4/26/10, jonsson08a)
  Simulates gravitational lensing effect on the cosmological parameters. With 500 SNe (SNLS) and outlier removal (2.5 σ) with BAO data (Case 2), gravitational lensing would shift -0.0052 in $\Omega_m$and -0.0051 in w for a flat universe.

- Weighing dark matter haloes with gravitationally lensed supernovae (Jönsson et al. 2010) Attempts to measure the mass of galaxies from SNIa lensing from GOODS.

15. SN Light Curve Studies

15.1. Light Curve Fit

- A two-parameter luminosity correction for Type IA supernovae (Tripp et al. 1998, #63, 5/6/10, tripp98a)
  In addition to light curve slope parameter (Δm_{15}), this paper introduces a color correction term R, and measures the Hubble constant using CTIO data. $H_0 = 60 \pm 6 km/s/Mpc$ is reported.

15.2. Rise/Fall Time

- ★ The Rise Time of Type Ia Supernovae from the Supernova Legacy Survey (Conley et al. 2006)
  B rise time is measured from 73 SNeIa from SNLS 2 years data. The derived rise time is: t_{rise} (low z)= $19.1^{+0.18}_{-0.17}$ (stat) ± 0.2 (sys) and t_{rise} (high z)=$19.58^{+0.22}_{-0.19}$

16. Supernova Studies I : Normal Ia Supernova

16.1. SN1981B

- The Type I supernova 1981b in NGC 4536 - The first 100 days (branch83a) Branch et al. (1983)

16.2. SN1990N

- Optical light curves of the Type IA supernovae SN 1990N and 1991T (lira98a) Lira et al. (1998)
  (B-V)$_{Bmax}$=0.03: BVRI photometry is presented. They report B-V at Bmax is 0.03. Check: From Table 5, the closest data point to the Bmax is on JD 2,448,084.49 which is 1.8 days after their estimated Bmax date (2,448,082.7). B-V=12.790-12.732=0.058. MW extinction is 0.026, thus the closest MW corrected B-V=0.032.

16.3. SN2002cd

- CfA3: 185 Type Ia Supernova Light Curves from the CfA (hicken09a) Hicken et al. (2009)
  (B-V)$_{Bmax}$=0.464: Raw Data from the paper. z=0.0097 and K-correction is negligible. B maximum is around 2002-04-19 (MJD=52383.496), and magnitudes are: B=17.145 and V=16.272. Thus the raw B-V=17.145-16.272=0.873. MW extinction is large: E(B-V)=0.409. The extinction corrected color is B-V=0.873-0.409=0.464.

17. Supernova Studies II : 91bg-like

17.1. SN1986G

- The type 1a supernova 1986G in NGC 5128 - Optical photometry and spectra (phillips87a, #147 : Mar 17, 2009) Phillips et al. (1987)
  (B-V)$_{Bmax}$ =0.90±0.10 : Early studies of SN Ia: No modern parameterization. But they report B$_{max}$ date is on May 11 $\pm$ 1 (Table4). They report B-V at Bmax is 0.90 $\pm$ 0.10 in Section III(E). Check: From their photometry data (Table1), B-V on May 11.09 is 1.03±0.01. Milky Way Extinction E(B-V)=0.115 from Schlegel Map. Therefore, we expect B-V at the time of Bmax is 1.03-0.115=0.915. SN1986G appeared in the middle of dust lane in NGC5128 (Centaurus A). Two interstellar absorption line systems (CaII H&K and NaI) are reported. One of them is Milky Way ($v \sim 0$ km/s), and the other is associated with NGC5128 ($v \sim 430$ km/s).

17.2. SN1989B

- The Type IA supernova 1989B in NGC 3627 (M66) (wells94a, #110 : Mar 17, 2009) Wells et al. (1994)
  (B-V)$_{Bmax}$=0.32 : B$_{max}$ date is 2447565.3 $\pm$ 1.0 in Table 8. They report B$_{max}$=12.34$\pm$0.05 and V$_{Bmax}$=12.02$\pm$0.05 in Table 8, which leads to (B-V)$_{Bmax}$=0.32. They do not indicate Milky Way extinction correction which is E(B-V)=0.032. Thus 0.32-0.032=0.288. Check: The closest data point is JD 2447566.8 and B-V is 12.41-12.02=0.39 from Table3. However, there is another observation in Table 5 from photoelectric photometry. On JD 2447465.81 B-V=12.29-11.83=0.36. With MW correction, it would be (B-V)$_{Bmax}$=0.328. Supernova is in the middle of spiral galaxy's arm.

17.3. SN1991bg

- The subluminous, spectroscopically peculiar type IA supernova 1991bg in the elliptical galaxy NGC 4374 (filippenko92b) Filippenko et al. (1992a)
  The original 91bg paper which defines fast decliner and its peculiarities. This observation does not have B magnitude.

- SN 1991bg - A type IA supernova with a difference (leibundgut93a) Leibundgut et al. (1993)
  (B-V)$_{Bmax}$=0.683: Observation with BVRI band magnitude no data before B$_{max}$. Krisciunas et al. (2004) below estimates that the B$_{max}$ had happened 2 days before V$_{max}$ (Dec 14.7). Check: The closest data point is Dec 13.50 which B-V=0.74. One day after Dec 14.50 gives B-V=0.85. The color evolution is very fast. Thus we can deduce (B-V)$_{Bmax}$ < 0.74. Milky Way extinction E(B-V)=0.041 so MW extinction corrected color would be (B-V)$_{Bmax}$ < 0.7. MLCS2k2 Jha et al. (2007) estimates 0.683 and it is in a good agreement.

- The properties of the peculiar type Ia supernova 1991bg. I. Analys is and discussion of two years of observations (turatto96b) Turatto et al. (1996)
  (B-V)$_{Bmax}$=0.74: Both light curve (BVRI) and spectra are analyzed. Good quality data but it still misses Bmax data. Bmax is on their JD 604 and the closest data point is +1.85 day and raw color is B-V=14.87-14.11=0.76 from Table 1. With MW correction, (B-V)$_{Bmax}$=0.76-0.041=0.719. They report the (B-V)$_{Bmax}$ ~ 0.75 but not clearly showed how they got this number. However, they also report B$_{max}$-V$_{max}$= 14.75-13.96=0.79 from Table 3, and with MW correction, B$_{max}$-V$_{max}$=0.79-0.041 =0.749. Thus reported number is a reasonable estimate and we adopt 0.74.

- Optical and Infrared Photometry of the Type Ia Supernovae 1991T, 1 991bg, 1999ek, 2001bt, 2001cn, 2001cz, and 2002bo (krisciunas04a) Krisciunas et al. (2004)

17.4. SN1997cn

- A New Faint Type IA Supernova: SN 1997CN in NGC 5490 (turatto98a) Turatto et al. (1998)
  (B-V)$_{Bmax}$=0.502 from MLCS2k2 fit: The data point misses the Bmax. The date of Bmax is JD 2,450,588. The closest data is on 592.06 which is in phase +4.06 day and raw color B-V=17.46-16.62=0.82 from Table 1. MW correction is E(B-V)=0.027, thus MW corrected color is B-V=0.82-0.027=0.793. We expect the true (B-V)$_{Bmax}$ is bluer than this number. They report B and V maximum magnitude and B$_{max}$-V$_{max}$=17.2-16.55=0.65. With MW correction B$_{max}$-V$_{max}$=0.65-0.027=0.623. Since at the time of Bmax, V $>$ V$_{max}$, we expect (B-V)$_{Bmax}$ ¡ 0.623. MLCS2k2 fit by Jha et al. (2007) gives us 0.502. For now, we adopt this number. at Bmax should be less than 0.623.

17.5. SN1998bp

- UBVRI Light Curves of 44 Type Ia Supernovae (jha06) **?**
  (B-V)$_{Bmax}$=0.283: form LTCV data points SALT2 fits find Bmax at MJD=50936.158. On MJD=50937.398, data points are: Bmag=15.672±0.017, Vmag=15.313±0.010. Thus, B-V=15.672-15.313=0.359. Since MW extinction is E(B-V)=0.076, a(B-V)$_{Bmax}$=0.359-0.076=0.283.

17.6. SN1999da

- Optical and Infrared Photometry of the Type Ia Supernovae 1999da, 1999dk, 1999gp, 2000bk, and 2000ce (krisciunas01a) Krisciunas et al. (2001)
  (B-V)$_{Bmax}$=0.611: form MLCS2k2 Poorly organized paper. SN1999da is presented but no Bmax date or color information is provided. From Table 6, the photometry data, the raw B-V color right before Vmax is 0.516 and it is getting redder so we can deduce (B-V)$_{Bmax}$ $>$ 0.516. For now, we adopt best fit color from MLCS2k2 which is 0.611. However, the paper reports this is a faster decliner than a Type Ia SN characterized by Δ=0.50 so it cannot be fitted with the MLCS vector. (Riess' original fit not Jha et al 2006)

18. Supernova Studies III : 91T-like

18.1. SN1991T

- The peculiar Type IA SN 1991T - Detonation of a white dwarf? (filippenko92a) Filippenko et al. (1992b) This paper defines 91T-like supernova. "The absence of Si II and Ca II lines in SN1991T reflects low abundances of intermediate-mass elements rather than an excitation effect." The paper discusses the continuum looks very similar to SN1990N.

- Optical light curves of the Type IA supernovae SN 1990N and 1991T (lira98a) Lira et al. (1998)
  (B-V)$_{Bmax}$=0.17: BVRI photometry is presented. They report (B-V)$_{Bmax}$=0.17. In section 3.1, they estimate Bmax is on JD 2,448,375.7±0.5. In Table 6, they have 2 data points on JD 2,448,375,65. B-V(1)=11.715-11.568=0.147, and B-V(2)=11.720-11.537=0.183, their error bar is 0.016. MW extinction is 0.022 therefore, B-V(1)=0.125, and B-V(2)=0.161. If we take the average, (B-V)$_{Bmax}$=0.143.

19. Supernova Studies IV : Super Chandra

19.1. SN2009dc

- Spectropolarimetry of Extremely Luminous Type Ia Supernova 2009dc: Nearly Spherical Explosion of Super-Chandrasekhar Mass White Dwarf (Tanaka et al. 2010)
  Studies spectropolarimetry of Super-Chandra SNIa from 5.6 to 89.5 days after Bmax.

19.2. SN2007if

- Nearby Supernova Factory Observations of SN 2007if: First Total Mass Measu rement of a Super-Chandrasekhar-Mass Progenitor (Scalzo et al. 2010)

19.3. SN2006gz

- The Luminous and Carbon-rich Supernova 2006gz: A Double Degenerate Merger? (Hicken et al. 2007)

19.4. SN2003fg : SNLS-03D3bb

- ★★★ The type Ia supernova SNLS-03D3bb from a super-Chandrasekhar-mass white dwarf star (Howell et al. 2006)
  The first discovey paper of super-Shandrasekhar mass SNIa.

20. Supernova Studies V : High Velocity Features (HVF)

21. Supernova Studies VI : CSM interaction

21.1. SN2006X

- The Detection of a Light Echo from the Type Ia Supernova 2006X in M100 (Wang et al. 2008)

21.2. SN2005gj

- Nearby Supernova Factory Observations of SN 2005gj: Another Type Ia Supern ova in a Massive Circumstellar Envelope (Aldering et al. 2006)

21.3. SN2002ic : SNIa/SNIIn hybrid

- ★★ An asymptotic-giant-branch star in the progenitor system of a type Ia supernova (Hamuy et al. 2003, #137, 6/4/2010)

- On the nature of the circumstellar medium of the remarkable Type Ia/IIn su pernova SN 2002ic (Kotak et al. 2004, #39, 6/2/10, kotak04a)
  High-resolution, high S/N data is presented. Hα emission exibits P-Cygni profile at the velocity of 100 km/s. They conclude the projenitor is WD+Red Giant and CSM interaction.

- Subaru Spectroscopy of the Interacting Type Ia Supernova SN 2002ic: Eviden ce of a Hydrogen-rich, Asymmetric Circumstellar Medium (Deng et al. 2004, #47, 6/2/10)
  Spectrum at 222 restframe days is presented. Strong H$line, CaIIlinesandstronginteractionwithCSM$

- On the Hydrogen Emission from the Type Ia Supernova SN 2002ic (Wang et al. 2004, #50, 6/2/10, wang04b)
  Lifan reports the detection of Hα emission line from SN2002ic. Spectropolarimetry data shows aspherically distributed hydrogen-rich CSM.

- Novae as a Mechanism for Producing Cavities around the Progenitors of SN 2 002ic and Other Type Ia Supernovae (Wood-Vasey & Sokoloski 2006)
  A model of recurrent nova projenitor forms CSM.

22. Supernova Studies VII : Peculiar Supernova

22.1. SN1999by

- The Luminosity of SN 1999by in NGC 2841 and the Nature of "Peculiar" Type Ia Supernovae (garnavich04a) Garnavich et al. (2004)
  (B-V)$_{Bmax}$=0.434: They report B$_{max}$-V$_{max}$=0.51±0.03, however, this is not what we are interested in. Bmax JD is 1308.8±0.3 from Table 5, and the closest data point is -0.17 day. The raw color is B-V=13.66-13.21(±0.02)=0.45. MW extinction correction from Schlegel table is E(B-V)=0.016. Thus, MW corrected color is B-V=0.45-0.016=0.0434. This supernova is peculiar because of its peak absolute magnitude, M$_B$=-17.15 which is one of the least luminous events. This paper reports the good correlation between 580nm depth. This 580nm line was thought to be attributed solely to Si II but in cooler photospheres it is dominated by Ti II.

22.2. SN2000cx

- The Unique Type Ia Supernova 2000cx in NGC 524 (li01a) Li et al. (2001)
  (B-V)$_{Bmax}$=0.088: No clear description of the color B-V at Bmax. Bmax is on JD 2,451,752.2. The closest data point is +0.76 day and raw B-V=13.44-13.27=0.17. MW correction E(B-V)=0.082. Thus MW corrected B-V at Bmax is 0.17-0.082=0.088.

  SN2000cx is found in early type galaxy NGC524 whose Hubble type is S0. The location is very far from nucleus so we expect to see minimum extinction from the host galaxy. Premaximum spectrum is similar to SN1991T (weak Si II lines), but Si II emerges around maximum. Asymmetric brightening is observed: Premaximum brightening is very fast but postmaximum decline is slow. Both the iron-peak and the intermediate-mass elements are found to be moving at very high expansion velocities in the ejecta of SN2000cx.

22.3. SN2002cx

- SN 2002cx: The Most Peculiar Known Type Ia Supernova (li03a) Li et al. (2003)
  (B-V)$_{Bmax}$=0.04±0.05: In section 2.3, they report (B-V)$_{Bmax}$=0.04. Check: Bmax is on JD 2,452,415.2, and the closest data points is on -2.4 days and it gives us B-V(1)=17.77-17.73=0.04. The second closest is on +4.6 days and gives us B-V(2)=17.85-17.45=0.4. The color is evolving very quickly. MW extinction is E(B-V)=0.032. B-V(1) would become 0.018, and we expect at Bmax it should be redder. 0.04 is a good estimate.

  They report that the premaximum spectrum is similar to 91T-like but the luminosity is similar to 91bg-like. Lines are dominated by Fe-group elements.

- Late-Time Spectroscopy of SN 2002cx: The Prototype of a New Subclass of Type Ia Supernovae (jha06b) **?**
  This paper presents late time spectra and shows very low expansion velocities ~ 700 km/s. Low velocity O I line is reported and it suggests unburned materials. The paper concludes that the sectral characteristics may be consistent with pure deflagration models of Chandrasekhar-mass thermonuclear SNe.

22.4. SN2003cg

- Anomalous extinction behaviour towards the Type Ia SN 2003cg (eliasrosa06a) Elias-Rosa et al. (2006)
  (B-V)$_{Bmax}$=1.33±0.11: Highly extinguished supernova. They report interstellar line Na ID and CaII H&K. Contradicting results are reported in this paper: They report E(B-V)=1.33 in abstract and table 11. Since they assume the color of supernova at Bmax is 0.00 (section 3: they refer to Schaefer et al. 1995), color excess translates into B-V color directly. However, in the same section, they refer to (B-V)$_{Bmax}$ is 1.08. No clue how to add 0.25 mag. Also, on the Table 11, A$_V$ is reported 0.134. MW Extinction form Schlegel map is 0.031. If R$_B$=4.1 then, $4.1 \times 0.031 = 0.1271$ and 0.0069 mag off.

  Check: The closest data point to Bmax is +1.4 days. B=15.97-0.016=15.954 (-0.16 is s-correction) and V=14.72-0.011=14.709. Thus B-V=1.245. MW Extinction is E(B-V)=0.031. B-V=1.245-0.031=1.215=1.22. This number agrees with their estimate within an error bar. They claim they did simultaneous fit but 1.22 seems to be more consistent with the data.

22.5. SN2004dt

- The early spectral evolution of SN 2004dt (altavilla07a) Altavilla et al. (2007)
  (B-V)$_{Bmax}$=-0.03±0.02: This is a spectroscopy paper and they mention photometry paper is expected later. However, they quote photometry data results. From Table 1, (B-V)$_{Bmax}$ is -0.03. (They assume normal supernova has (B-V)$_{Bmax}$=-0.07 which is SALT2? value. Host galaxy is SBa type. The highest degree of polarization is observed. This supernova has a complex velocity structure and unburnt Oxygen is present. The velocity is 16,700 km/s with some intermediate-mass elements (Mg,Si,Ca) moving equally fast.

22.6. SN2005cf

- ESC observations of SN 2005cf. II. Optical spectroscopy and the high-velocity features (garavini07a) Garavini et al. (2007)

22.7. SN2005hk

- The Evolution of the Peculiar Type Ia Supernova SN 2005hk over 400 Days (sahu08a) **?**
  UBVRI photometry and spectroscopy is presented. SN2005hk is similar to other underluminous SNe Ia, SN2002cx and SN2003gq. The expansion velocity of the supernova is slower than normal Ia. The best fit model suggests less energetic deflagration explosion is the case.

22.8. SN2006gz

- The Luminous and Carbon-rich Supernova 2006gz: A Double Degenerate Merger? (hicken07a) Hicken et al. (2007)
  (B-V)$_{Bmax}$=+0.02: (derived from photometry data points) Super-Chandra candidate. Unburned carbon signature in the spectrum, and one of the slowest fading light ever seen in a Type Ia event. They report host galaxy extinction corrected color B-V=-0.17 however, we wish to know uncorrected raw color (but MW corrected). Bmax date is JD 2,454,020.2. From the raw photometry data taken from the cfa web site, the closest data point is taken on 2454019.60500 (+0.6day). B=16.059±0.014, V=16.006±0.013. Thus raw color is B-V=16.059-16.006=0.053. MW extinction is E(B-

V)=0.063. (B-V)$_{Bmax}$=0.053-0.063=-0.01. Just in case, let's try the second closest data point taken on 2454021.579 (+1 day). B=16.064±0.015 and V=15.971±0.013, thus raw color is B-V=16.064-15.971=0.093. MW extinction considered, (B-V)$_{Bmax}$=0.093-0.063=0.03. In section 3.2, they mention absolute luminosities of $M_B = -19.17 \pm 0.04$ and $M_V = -19.19 \pm 0.04$. B-V (MW corrected) = $M_B - M_V = -19.17 + 19.19 = +0.02$. This number is consistent with the color we derived from the photometry data.

SCP Papers

- Spectra of High-Redshift Type Ia Supernovae and a Comparison with Their Low-R edshift Counterparts (Hook et al. 2005, #)
  Spectra for 14 high-z (0.17< z <0.83) SNeIa are presented.

$$m = zpt - 2.5log_{10}flux \tag{1}$$

REFERENCES

Aldering, G., Antilogus, P., Bailey, S., Baltay, C., Bauer, A., Blanc, N., Bongard, S., Copin, Y., Gangler, E., Gilles, S., Kessler, R., Kocevski, D., Lee, B. C., Loken, S., Nugent, P., Pain, R., Pécontal, E., Pereira, R., Perlmutter, S., Rabinowitz, D., Rigaudier, G., Scalzo, R., Smadja, G., Thomas, R. C., Wang, L., & Weaver, B. A. 2006, ApJ, 650, 510

Altavilla, G., Stehle, M., Ruiz-Lapuente, P., Mazzali, P., Pignata, G., Balastegui, A., Benetti, S., Blanc, G., Canal, R., Elias-Rosa, N., Goobar, A., Harutyunyan, A., Pastorello, A., Patat, F., Rich, J., Salvo, M., Schmidt, B. P., Stanishev, V., Taubenberger, S., Turatto, M., & Hillebrandt, W. 2007, A&A, 475, 585

Blondin, S., Prieto, J. L., Patat, F., Challis, P., Hicken, M., Kirshner, R. P., Matheson, T., & Modjaz, M. 2009, ApJ, 693, 207

Borkowski, K. J., Blondin, J. M., & Reynolds, S. P. 2009, ApJ, 699, L64

Branch, D. 1998, ARA&A, 36, 17

Branch, D., Lacy, C. H., McCall, M. L., Sutherland, P. G., Uomoto, A., Wheeler, J. C., & Wills, B. J. 1983, ApJ, 270, 123

Conley, A., Howell, D. A., Howes, A., Sullivan, M., Astier, P., Balam, D., Basa, S., Carlberg, R. G., Fouchez, D., Guy, J., Hook, I., Neill, J. D., Pain, R., Perrett, K., Pritchet, C. J., Regnault, N., Rich, J., Taillet, R., Aubourg, E., Bronder, J., Ellis, R. S., Fabbro, S., Filiol, M., Le Borgne, D., Palanque-Delabrouille, N., Perlmutter, S., & Ripoche, P. 2006, AJ, 132, 1707

De Marco, O., Bond, H. E., Harmer, D., & Fleming, A. J. 2004, ApJ, 602, L93

Deng, J., Kawabata, K. S., Ohyama, Y., Nomoto, K., Mazzali, P. A., Wang, L., Jeffery, D. J., Iye, M., Tomita, H., & Yoshii, Y. 2004, ApJ, 605, L37

Douglas, N. G., Napolitano, N. R., Romanowsky, A. J., Coccato, L., Kuijken, K., Merrifield, M. R., Arnaboldi, M., Gerhard, O., Freeman, K. C., Merrett, H. R., Noordermeer, E., & Capaccioli, M. 2007, ApJ, 664, 257

Draine, B. T. 2003, ARA&A, 41, 241

Elias-Rosa, N., Benetti, S., Cappellaro, E., Turatto, M., Mazzali, P. A., Patat, F., Meikle, W. P. S., Stehle, M., Pastorello, A., Pignata, G., Kotak, R., Harutyunyan, A., Altavilla, G., Navasardyan, H., Qiu, Y., Salvo, M., & Hillebrandt, W. 2006, MNRAS, 369, 1880

Filippenko, A. V. 1997, ARA&A, 35, 309

Filippenko, A. V., Richmond, M. W., Branch, D., Gaskell, M., Herbst, W., Ford, C. H., Treffers, R. R., Matheson, T., Ho, L. C., Dey, A., Sargent, W. L. W., Small, T. A., & van Breugel, W. J. M. 1992a, AJ, 104, 1543

Filippenko, A. V., Richmond, M. W., Matheson, T., Shields, J. C., Burbidge, E. M., Cohen, R. D., Dickinson, M., Malkan, M. A., Nelson, B., Pietz, J., Schlegel, D., Schmeer, P., Spinrad, H., Steidel, C. C., Tran, H. D., & Wren, W. 1992b, ApJ, 384, L15

Gallagher, J. S., Garnavich, P. M., Berlind, P., Challis, P., Jha, S., & Kirshner, R. P. 2005, ApJ, 634, 210

Gallagher, J. S., Garnavich, P. M., Caldwell, N., Kirshner, R. P., Jha, S. W., Li, W., Ganeshalingam, M., & Filippenko, A. V. 2008, ApJ, 685, 752

Garavini, G., Nobili, S., Taubenberger, S., Pastorello, A., Elias-Rosa, N., Stanishev, V., Blanc, G., Benetti, S., Goobar, A., Mazzali, P. A., Sanchez, S. F., Salvo, M., Schmidt, B. P., & Hillebrandt, W. 2007, A&A, 471, 527

Garnavich, P. M., Bonanos, A. Z., Krisciunas, K., Jha, S., Kirshner, R. P., Schlegel, E. M., Challis, P., Macri, L. M., Hatano, K., Branch, D., Bothun, G. D., & Freedman, W. L. 2004, ApJ, 613, 1120

Gerardy, C. L., Höflich, P., Fesen, R. A., Marion, G. H., Nomoto, K., Quimby, R., Schaefer, B. E., Wang, L., & Wheeler, J. C. 2004, ApJ, 607, 391

Gerhard, O., Arnaboldi, M., Freeman, K. C., Okamura, S., Kashikawa, N., & Yasuda, N. 2007, A&A, 468, 815

Goobar, A. 2008, ApJ, 686, L103

Hamuy, M., Phillips, M. M., Suntzeff, N. B., Maza, J., González, L. E., Roth, M., Krisciunas, K., Morrell, N., Green, E. M., Persson, S. E., & McCarthy, P. J. 2003, Nature, 424, 651

Hicken, M., Garnavich, P. M., Prieto, J. L., Blondin, S., DePoy, D. L., Kirshner, R. P., & Parrent, J. 2007, ApJ, 669, 17

Hicken, M., Wood-Vasey, W. M., Blondin, S., Challis, P., Jha, S., Kelly, P. L., Rest, A., & Kirshner, R. P. 2009, ApJ, 700, 1097

Hook, I. M., Howell, D. A., Aldering, G., Amanullah, R., Burns, M. S., Conley, A., Deustua, S. E., Ellis, R., Fabbro, S., Fadeyev, V., Folatelli, G., Garavini, G., Gibbons, R., Goldhaber, G., Goobar, A., Groom, D. E., Kim, A. G., Knop, R. A., Kowalski, M., Lidman, C., Nobili, S., Nugent, P. E., Pain, R., Pennypacker, C. R., Perlmutter, S., Ruiz-Lapuente, P., Sainton, G., Schaefer, B. E., Smith, E., Spadafora, A. L., Stanishev, V., Thomas, R. C., Walton, N. A., Wang, L., & Wood-Vasey, W. M. 2005, AJ, 130, 2788

Howell, D. A., Sullivan, M., Nugent, P. E., Ellis, R. S., Conley, A. J., Le Borgne, D., Carlberg, R. G., Guy, J., Balam, D., Basa, S., Fouchez, D., Hook, I. M., Hsiao, E. Y., Neill, J. D., Pain, R., Perrett, K. M., & Pritchet, C. J. 2006, Nature, 443, 308

Jha, S., Riess, A. G., & Kirshner, R. P. 2007, ApJ, 659, 122

Jönsson, J., Dahlén, T., Hook, I., Goobar, A., & Mörtsell, E. 2010, MNRAS, 402, 526

Jönsson, J., Kronborg, T., Mörtsell, E., & Sollerman, J. 2008, A&A, 487, 467

Jönsson, J., Mörtsell, E., & Sollerman, J. 2009, A&A, 493, 331

Kobayashi, C. & Nomoto, K. 2009, ApJ, 707, 1466

Kotak, R., Meikle, W. P. S., Adamson, A., & Leggett, S. K. 2004, MNRAS, 354, L13

Krisciunas, K., Phillips, M. M., Stubbs, C., Rest, A., Miknaitis, G., Riess, A. G., Suntzeff, N. B., Roth, M., Persson, S. E., & Freedman, W. L. 2001, AJ, 122, 1616

Krisciunas, K., Suntzeff, N. B., Phillips, M. M., Candia, P., Prieto, J. L., Antezana, R., Chassagne, R., Chen, H.-W., Dickinson, M., Eisenhardt, P. R., Espinoza, J., Garnavich, P. M., González, D., Harrison, T. E., Hamuy, M., Ivanov, V. D., Krzemiński, W., Kulesa, C., McCarthy, P., Moro-Martín, A., Muena, C., Noriega-Crespo, A., Persson, S. E., Pinto, P. A., Roth, M., Rubenstein, E. P., Stanford, S. A., Stringfellow, G. S., Zapata, A., Porter, A., & Wischnjewsky, M. 2004, AJ, 128, 3034

Kulkarni, S. R. & van Kerkwijk, M. H. 2010, ArXiv e-prints

Leibundgut, B., Kirshner, R. P., Phillips, M. M., Wells, L. A., Suntzeff, N. B., Hamuy, M., Schommer, R. A., Walker, A. R., Gonzalez, L., Ugarte, P., Williams, R. E., Williger, G., Gomez, M., Marzke, R., Schmidt, B. P., Whitney, B., Coldwell, N., Peters, J., Chaffee, F. H., Foltz, C. B., Rehner, D., Siciliano, L., Barnes, T. G., Cheng, K.-P., Hintzen, P. M. N., Kim, Y.-C., Maza, J., Parker, J. W., Porter, A. C., Schmidtke, P. C., & Sonneborn, G. 1993, AJ, 105, 301

Lenzuni, P., Gail, H., & Henning, T. 1995, ApJ, 447, 848

Li, W., Filippenko, A. V., Chornock, R., Berger, E., Berlind, P., Calkins, M. L., Challis, P., Fassnacht, C., Jha, S., Kirshner, R. P., Matheson, T., Sargent, W. L. W., Simcoe, R. A., Smith, G. H., & Squires, G. 2003, PASP, 115, 453

Li, W., Filippenko, A. V., Gates, E., Chornock, R., Gal-Yam, A., Ofek, E. O., Leonard, D. C., Modjaz, M., Rich, R. M., Riess, A. G., & Treffers, R. R. 2001, PASP, 113, 1178

Lira, P., Suntzeff, N. B., Phillips, M. M., Hamuy, M., Maza, J., Schommer, R. A., Smith, R. C., Wells, L. A., Avilés, R., Baldwin, J. A., Elias, J. H., González, L., Layden, A., Navarrete, M., Ugarte, P., Walker, A. R., Williger, G. M., Baganoff, F. K., Crotts, A. P. S., Rich, R. M., Tyson, N. D., Dey, A., Guhathakurta, P., Hibbard, J., Kim, Y.-C., Rehner, D. M., Siciliano, E., Roth, J., Seitzer, P., & Williams, T. B. 1998, AJ, 115, 234

Mannucci, F., Della Valle, M., & Panagia, N. 2006, MNRAS, 370, 773

Mannucci, F., Della Valle, M., Panagia, N., Cappellaro, E., Cresci, G., Maiolino, R., Petrosian, A., & Turatto, M. 2005, A&A, 433, 807

Mathews, W. G. & Baker, J. C. 1971, ApJ, 170, 241

Méndez, R. H., Riffeser, A., Kudritzki, R., Matthias, M., Freeman, K. C., Arnaboldi, M., Capaccioli, M., & Gerhard, O. E. 2001, ApJ, 563, 135

Neill, J. D., Sullivan, M., Balam, D., Pritchet, C. J., Howell, D. A., Perrett, K., Astier, P., Aubourg, E., Basa, S., Carlberg, R. G., Conley, A., Fabbro, S., Fouchez, D., Guy, J., Hook, I., Pain, R., Palanque-Delabrouille, N., Regnault, N., Rich, J., Taillet, R., Aldering, G., Antilogus, P., Arsenijevic, V., Balland, C., Baumont, S., Bronder, J., Ellis, R. S., Filiol, M., Gonçalves, A. C., Hardin, D., Kowalski, M., Lidman, C., Lusset, V., Mouchet, M., Mourao, A., Perlmutter, S., Ripoche, P., Schlegel, D., & Tao, C. 2006, AJ, 132, 1126

Neill, J. D., Sullivan, M., Howell, D. A., Conley, A., Seibert, M., Martin, D. C., Barlow, T. A., Foster, K., Friedman, P. G., Morrissey, P., Neff, S. G., Schiminovich, D., Wyder, T. K., Bianchi, L., Donas, J., Heckman, T. M., Lee, Y., Madore, B. F., Milliard, B., Rich, R. M., & Szalay, A. S. 2009, ApJ, 707, 1449

Okamura, S., Yasuda, N., Arnaboldi, M., Freeman, K. C., Ando, H., Doi, M., Furusawa, H., Gerhard, O., Hamabe, M., Kimura, M., Kajino, T., Komiyama, Y., Miyazaki, S., Nakata, F., Napolitano, N. R., Ouchi, M., Pannella, M., Sekiguchi, M., Shimasaku, K., & Yagi, M. 2002, PASJ, 54, 883

Patat, F., Chandra, P., Chevalier, R., Justham, S., Podsiadlowski, P., Wolf, C., Gal-Yam, A., Pasquini, L., Crawford, I. A., Mazzali, P. A., Pauldrach, A. W. A., Nomoto, K., Benetti, S., Cappellaro, E., Elias-Rosa, N., Hillebrandt, W., Leonard, D. C., Pastorello, A., Renzini, A., Sabbadin, F., Simon, J. D., & Turatto, M. 2007, Science, 317, 924

Phillips, M. M., Phillips, A. C., Heathcote, S. R., Blanco, V. M., Geisler, D., Hamilton, D., Suntzeff, N. B., Jablonski, F. J., Steiner, J. E., Cowley, A. P., Schmidtke, P., Wyckoff, S., Hutchings, J. B., Tonry, J., Strauss, M. A., Thorstensen, J. R., Honey, W., Maza, J., Ruiz, M. T., Landolt, A. U., Uomoto, A., Rich, R. M., Grindlay, J. E., Cohn, H., Smith, H. A., Lutz, J. H., Lavery, R. J., & Saha, A. 1987, PASP, 99, 592

Richer, M. G., McCall, M. L., & Arimoto, N. 1997, A&AS, 122, 215

Rowan-Robinson, M. 2002, MNRAS, 332, 352

Salpeter, E. E. 1977, ARA&A, 15, 267

Scalzo, R. A., Aldering, G., Antilogus, P., Aragon, C., Bailey, S., Baltay, C., Bongard, S., Buton, C., Childress, M., Chotard, N., Copin, Y., Fakhouri, H. K., Gal-Yam, A., Gangler, E., Hoyer, S., Kasliwal, M., Loken, S., Nugent, P., Pain, R., Pécontal, E., Pereira, R., Perlmutter, S., Rabinowitz, D., Rau, A., Rigaudier, G., Runge, K., Smadja, G., Tao, C., Thomas, R. C., Weaver, B., & Wu, C. 2010, ApJ, 713, 1073

Simon, J. D., Gal-Yam, A., Gnat, O., Quimby, R. M., Ganeshalingam, M., Silverman, J. M., Blondin, S., Li, W., Filippenko, A. V., Wheeler, J. C., Kirshner, R. P., Patat, F., Nugent, P., Foley, R. J., Vogt, S. S., Butler, R. P., Peek, K. M. G., Rosolowsky, E., Herczeg, G. J., Sauer, D. N., & Mazzali, P. A. 2009, ApJ, 702, 1157

Sullivan, M., Ellis, R., Nugent, P., Smail, I., & Madau, P. 2000, MNRAS, 319, 549

Sullivan, M., Ellis, R. S., Aldering, G., Amanullah, R., Astier, P., Blanc, G., Burns, M. S., Conley, A., Deustua, S. E., Doi, M., Fabbro, S., Folatelli, G., Fruchter, A. S., Garavini, G., Gibbons, R., Goldhaber, G., Goobar, A., Groom, D. E., Hardin, D., Hook, I., Howell, D. A., Irwin, M., Kim, A. G., Knop, R. A., Lidman, C., McMahon, R., Mendez, J., Nobili, S., Nugent, P. E., Pain, R., Panagia, N., Pennypacker, C. R., Perlmutter, S., Quimby, R., Raux, J., Regnault, N., Ruiz-Lapuente, P., Schaefer, B., Schahmaneche, K., Spadafora, A. L., Walton, N. A., Wang, L., Wood-Vasey, W. M., & Yasuda, N. 2003, MNRAS, 340, 1057

Sullivan, M., Le Borgne, D., Pritchet, C. J., Hodsman, A., Neill, J. D., Howell, D. A., Carlberg, R. G., Astier, P., Aubourg, E., Balam, D., Basa, S., Conley, A., Fabbro, S., Fouchez, D., Guy, J., Hook, I., Pain, R., Palanque-Delabrouille, N., Perrett, K., Regnault, N., Rich, J., Taillet, R., Baumont, S., Bronder, J., Ellis, R. S., Filiol, M., Lusset, V., Perlmutter, S., Ripoche, P., & Tao, C. 2006, ApJ, 648, 868

Tanaka, M., Kawabata, K. S., Yamanaka, M., Maeda, K., Hattori, T., Aoki, K., Nomoto, K., Iye, M., Sasaki, T., Mazzali, P. A., & Pian, E. 2010, ApJ, 714, 1209

Totani, T. & Kobayashi, C. 1999, ApJ, 526, L65

Tovmassian, G., Yungelson, L., Rauch, T., Suleimanov, V., Napiwotzki, R., Stasińska, G., Tomsick, J., Wilms, J., Morisset, C., Peña, M., & Richer, M. G. 2010, ApJ, 714, 178

Tripp, T. M., Lu, L., & Savage, B. D. 1998, ApJ, 508, 200

Turatto, M., Benetti, S., Cappellaro, E., Danziger, I. J., Della Valle, M., Gouiffes, C., Mazzali, P. A., & Patat, F. 1996, MNRAS, 283, 1

Turatto, M., Piemonte, A., Benetti, S., Cappellaro, E., Mazzali, P. A., Danziger, I. J., & Patat, F. 1998, AJ, 116, 2431

van Dokkum, P. G. & Franx, M. 1995, AJ, 110, 2027

Veilleux, S., Cecil, G., & Bland-Hawthorn, J. 2005, ARA&A, 43, 769

Wang, L. 2005, ApJ, 635, L33

Wang, L., Baade, D., Höflich, P., Wheeler, J. C., Kawabata, K., & Nomoto, K. 2004, ApJ, 604, L53

Wang, X., Li, W., Filippenko, A. V., Foley, R. J., Smith, N., & Wang, L. 2008, ApJ, 677, 1060

Wells, L. A., Phillips, M. M., Suntzeff, B., Heathcote, S. R., Hamuy, M., Navarrete, M., Fernandez, M., Weller, W. G., Schommer, R. A., Kirshner, R. P., Leibundgut, B., Willner, S. P., Peletier, R. P., Schlegel, E. M., Wheeler, J. C., Harkness, R. P., Bell, D. J., Matthews, J. M., Filippenko, A. V., Shields, J. C., Richmond, M. W., Jewitt, D., Luu, J., Tran, H. D., Appleton, P. N., Robson, E. I., Tyson, J. A., Guhathakurta, P., Eder, J. A., Bond, H. E., Potter, M., Veilleux, S., Porter, A. C., Humphreys, R. M., Janes, K. A., Williams, T. B., Costa, E., Ruiz, M. T., Lee, J. T., Lutz, J. H., Rich, R. M., Winkler, P. F., & Tyson, N. D. 1994, AJ, 108, 2233

Wood-Vasey, W. M. & Sokoloski, J. L. 2006, ApJ, 645, L53

Yasuda, N. & Fukugita, M. 2010, AJ, 139, 39

This preprint was prepared with the AAS LaTeX macros v5.2.