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%\usepackage{emulateapj5,natbib}

\usepackage{natbib}

\usepackage{amsmath}

\usepackage{url}

\usepackage{longtable}

\usepackage{aas\_macros}

\usepackage{amssymb}

\usepackage{graphicx}

\usepackage{deluxetable}

\usepackage{float}

\newcommand{\ugriz}{\protect\hbox{$ugriz$} }

\newcommand{\ugrizyjh}{\protect\hbox{$ugrizY\!\!J\!H$} }

\newcommand{\ugr}{\protect\hbox{$ugr$} }

\newcommand{\gri}{\protect\hbox{$gri$} }

\newcommand{\ri}{\protect\hbox{$ri$} }

\newcommand{\griz}{\protect\hbox{$griz$} }

%\newcommand{\ubvri}{\protect\hbox{$U\!BV\!RI$} }

\newcommand{\ubvrr}{\protect\hbox{$U\!BV\!r$} }

\newcommand{\ubvri}{\protect\hbox{$U\!BV\!ri$} }

\newcommand{\ubv}{\protect\hbox{$U\!BV$} }

\newcommand{\bvri}{\protect\hbox{$BV\!RI$} }

\newcommand{\sbvri}{\protect\hbox{$BV\!ri$} }

\newcommand{\bvrrii}{\protect\hbox{$BV\!rRiI$} }

\newcommand{\ubvgri}{\protect\hbox{$uBV\!gri$} }

\newcommand{\ubvgrrii}{\protect\hbox{$uBV\!grRiI$} }

\newcommand{\bvrijh}{\protect\hbox{$BV\!RI\!J\!H$} }

\newcommand{\ubvrijhk}{\protect\hbox{$U\!BV\!RI\!J\!H\!K$} }

\newcommand{\bvrijhk}{\protect\hbox{$BV\!RI\!J\!H\!K$} }

\newcommand{\vrijhk}{\protect\hbox{$V\!RI\!J\!H\!K$} }

\newcommand{\vri}{\protect\hbox{$V\!RI$} }

\newcommand{\vrizjhk}{\protect\hbox{$V\!RIzJ\!H\!K$} }

\newcommand{\jh}{\protect\hbox{$J\!H$} }

\newcommand{\jhk}{\protect\hbox{$J\!H\!K$} }

\newcommand{\jhks}{\protect\hbox{$J\!H\!K\_{s}$} }

\newcommand{\bvz}{\protect\hbox{$BV\!z$} }

\newcommand{\about}{$\sim\!\!$~}

\newcommand{\kms}{\,km\,s$^{-1}$}

\newcommand{\tab}{\hspace\*{0.2in}}

\newcommand{\err}[2]{\ensuremath{^{+#1}\_{-#2}}}

\newcommand{\msun}{M$\_{\sun}$}

\def\lsim{\hbox{\rlap{\raise 0.425ex\hbox{$<$}}\lower 0.65ex\hbox{$\sim$}}}

\def\gsim{\hbox{\rlap{\raise 0.425ex\hbox{$>$}}\lower 0.65ex\hbox{$\sim$}}}

\def\arcmin{\hbox{$^\prime$}}

\def\arcsec{\hbox{$^{\prime\prime}$}}

\def\arcdeg{\mbox{$^\circ$}}

\newcommand{\halpha}{H$\alpha$}

\newcommand{\hbeta}{H$\beta$}

\newcommand{\hgamma}{H$\gamma$}

\newcommand{\hdelta}{H$\delta$}

%\newcommand{\kms}{km~s$^{-1}$ }

\newcommand{\dof}{\rm dof}

\newcommand{\mean}[1]{\left \langle #1 \right \rangle}

\newcommand{\iue}{\protect\hbox{$IU\!E$} }

\newcommand{\hst}{\protect\hbox{$H\!ST$} }

\newcommand{\stis}{\protect\hbox{$ST\!I\!S$} }

\newcommand{\uvot}{\protect\hbox{$UV\!OT$\!\!.} }

\newcommand{\jwst}{\protect\hbox{$JW\!ST$} }

\newcommand{\vsi}{\protect\hbox{$v\_{\rm Si\,II}$}}

\newcommand{\vsiz}{\protect\hbox{$v\_{\rm Si\,II}^{0}$}}

\newcommand{\vca}{\protect\hbox{$v\_{\rm Ca\,H\&K}$}}

\newcommand{\vcaz}{\protect\hbox{$v\_{\rm Ca\,H\&K}^{0}$}}

\newcommand\ion[2]{#1$\,${\small{#2}}\relax}

\title[SN~Ia UV CSM]{Searching for Imprints of Circumstellar Material in the Ultraviolet Spectra of Type Ia Supernovae}

\def\illast{1}

\def\illphys{2}

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\begin{document}

\date{Accepted . Received ; in original form }

\pagerange{\pageref{firstpage}--\pageref{lastpage}} \pubyear{2014}

\maketitle

\label{firstpage}

\begin{abstract}

This is my abstract.

\end{abstract}

\begin{keywords}

{supernovae: general -- supernovae: individual: SN~2014J}

\end{keywords}

%%%%%%%%%%%%%%%%%%%%

%% Introduction %%

%%%%%%%%%%%%%%%%%%%%

\section{Introduction}\label{s:intro}

Type Ia supernovae (SNe Ia) have relatively homogeneous luminosities, making them excellent probes of dark energy and the accelerating expansion of the universe. There are multiple theories regarding their progenitor systems, the two most widely accepted being the single-degenerate (SD) and the double-degenerate (DD) models. The former consists of a white dwarf accreting material from either a main-sequence or red-giant star until it reaches the Chandrasekhar mass limit, igniting a thermonuclear explosion. The latter consists of two white dwarfs, where one accretes material onto the other or they collide, where either will also ignite a thermonuclear explosion . However, there is still much uncertainty regarding these systems, and developing a greater understanding of the circumstellar material surrounding SNe Ia is essential in fully understanding these explosions and using them to put greater constraints on dark energy.

The Na doublet located around 5890 and 5896 angstroms has been measured and analyzed in multiple studies and has shown variability in a handful of cases. This suggests that the Na gas is within 0.5 pc (because of an ionization potential of 5.1 eV) surrounding the SN is ionized by the initial flash. Later, as the Na recombines, absorption features will begin to appear in the SN’s spectrum. However, we need more information from other species with similar ionization potentials to Na in order to determine the circumstellar gas’ location, density, and distribution.

This work presents the first insight into the \ion{Mg}{II}, \ion{Mg}{I}, and \ion{Fe}{II} absorption features found in the ultraviolet spectrum of 8 SNe Ia, and is the first attempt to probe gas other than \ion{Na}{I}, \ion{Ca}{II} (not useful because it has a high ionization potential), and \ion{K}{I} (not useful because its features are remarkably weak; although a recent result by \citep{Graham14} does detect the weakening of the two most blueshifted components with velocities of 144 and 127 $km s^{-1}$). These features have rest wavelengths of 2796.35 $\AA$ and 2803.53 $\AA$ for the \ion{Mg}{II} doublet, 2852.96 $\AA$ for the \ion{Mg}{I} line, and 2344.21 $\AA$, 2374.46 $\AA$, 2382.76 $\AA$, 2586.65 $\AA$, and 2600.17 $\AA$ for the \ion{Fe}{II} lines, and can be seen in Figure~\ref{f:contPlot}. With ionization potentials 7.6 eV and 7.9 eV for \ion{Mg} and \ion{Fe}, respectively, these ions have the potential to add additional constraints on the location of circumstellar material surrounding SNe Ia.

\begin{figure}

\begin{center}

\includegraphics[angle=0,width=3.2in]{cont\_fit}

\caption{(Top) Maximum-brightness spectrum of SN~2011fe. The blue curve is a 3rd-order interpolated fit to the data including Gaussian profiles for the \ion{Fe}{II} $\lambda\lambda 2344$, $2374$, $2383$, $2587$, $2600$; \ion{Mg}{II} $\lambda\lambda2796$, $2803$; and \ion{Mg}{I} $\lambda2853$ absorption features. (Bottom) Normalized maximum-brightness spectrum of SN~2011fe. The inset is a zoom-in showing the region near the \ion{Mg}{I} and \ion{Mg}{II} features.}\label{f:contPlot}

\end{center}

\end{figure}

%%%%%%%%%%%%%%%%%%%%

%% Observations %%

%%%%%%%%%%%%%%%%%%%%

\section{Observations and Data Reduction}\label{s:obs}

Our sample consists of all SNe~Ia with at least two relatively high resolution ($R > 500$) and high signal-to-noise ratio (S/N) spectra that cover at least the \ion{Mg}{II} doublet. This limits the sample to 8 SNe~Ia, all observed by the {\it Hubble Space Telescope} ({\it HST}). With the exception of one SN, all spectra were obtained with the Space Telescope Imaging Spectrograph (STIS). SN~1992A was observed with the Faint Object Spectrograph (FOS). Spectra for SNe~1992A, 2011by, 2011fe, 2011iv, and 2014J were first published elsewhere \citep{Kirshner93, Foley12:11iv, Foley14:14j, Foley13:ca, Foley13:met, Mazzali13, Graham14}. All spectra were reduced in a consistent manner following standard procedures \citep[e.g.,][]{Foley12:11iv}.

Half the sample have only two or three epochs of spectroscopy, while the other half have $\ge$7 epochs. Details of the SNe are presented in Table~\ref{t:snep}. A log of all observations are listed in Table~\ref{t:obs}.

In all spectra, we see clear narrow absorption features from the \ion{Mg}{II} doublet. However, for three SNe, only lines consistent with Milky Way absporption are detected (SNe~1992A, 2011iv, and 2011ek). This is not unexpected for these objects since SNe~1992A and 2011iv have early-type hosts and SN~2011ek occurs at a projected distance of $>$10~kpc from its host. For the other 5 SNe~Ia, we detect mesurable \ion{Mg}{II} in at least one spectrum. For all SNe with detectable \ion{Mg}{II}, we have also detected \ion{Mg}{I} $\lambda$2851, and only SN~2011by, 2011fe, and 2013dy have detectable \ion{Fe}{II} absorption.

%%%%%%%%%%%%%%%%

%% Analysis %%

%%%%%%%%%%%%%%%%

\section{Analysis}\label{s:anal}

With detections of several absorption features, we now detail how we make our equivalent width (EW) measurements, determine limits for undetected lines, and verify our measurements.

In order to measure the EWs of the narrow absorption features, we first fit either a 3rd or 5th order b-spline to the continuum, based on the S/N of the spectrum. The knots used in the interpolation are set with equally spaced breakpoints (one for every 10, 12, or 17 pixels, based on S/N) and with manually inputted breakpoints where the b-spline isn’t consistent with the continuum. We then generate a normalized spectrum by dividing this fit from the continuum. Because the spectral resolution is low enough where the absorption features are unresolved, we fit Gaussian parameters (height, width, and redshift) to the absorption features using a least-squares minimization. Because of the low S/N of some spectra this method is preferable to a direct measurement, which can be significantly biased by the exact wavelength range chosen for integration. Then, we integrate over this Gaussian function to measure the equivalent width of each absorption feature, and use Equation~\ref{e:err} to determine the statistical error. $\sigma\_{h}$ and $\sigma\_{w}$ are found by taking the square root of the product of the reduced covariance and the reduced chi squared for the height and width, respectively, where the reduced covariance matrix is returned by the least squares algorithm.

\begin{equation}

\sigma\_{\rm tot}^{2} = \sqrt{\pi} \times (\sigma\_{h}^{2} \times w^{2} + \sigma\_{w}^{2} \times h^{2})

\label{e:err}\end{equation}

For SNe~2011by, 2012cg, and 2013dy, the Milky Way \ion{Mg}{II} $\lambda$2803 line overlaps in wavelength with the host-galaxy \ion{Mg}{II} $\lambda$2796 line. {\bf For 11fe, both lines overlap.} For these objects, we fit the entire feature (both \ion{Mg}{II} doublets) with two \ion{Mg}{II} doublets, one at zero velocity and the other at roughly the recession velocity of the host galaxy, simultaneously. Because of degeneracies in the fitting, we fixed each line from a given doublet to have the same shape. As a result for these objects, the EW for one \ion{Mg}{II} line is equivalent to that of the other. However, the additional data from the overlapping line is useful for constraining parameters and improves the accuracy of the EW measurement. To make these measurements, we use the same least-squares minimization algorithm to fit for the Gaussian parameters of all four absorption features simultaneously.

In addition to the statistical uncertainties determined during the Gaussian fitting, we estimated the systematic uncertainties, mostly resulting from uncertain continuum placement, through a Monte Carlo simulation. For each realization of the Monte Carlo simulation, we shift the nominal wavelength of the b-spline breakpoints and recreate the normalized continuum. The amplitudes of the shifts are chosen such that the continuum is not obviously incorrect for $95\%$ of 500 sample trials. We then measure the EWs of each line with the new normalized spectrum. The scatter in the resulting distribution of EW measurements was used to determine the systematic uncertainty. The statistical and systematic uncertainties were combined for our total uncertainty.

In some spectra, we do not detect any resolvable absorption. In such cases, we determined the magnitude necessary for each \ion{Fe} and \ion{Mg} absorption feature to be detected within the noise of a specific normalized spectrum. In SN~1992A, 2011ek, and 2011iv, we only detect absorption consistent with Milky Way measurements, and we cannot detect certain features in some other spectra from the other SNe, which are represented in Table~\ref{t:sne} as values without uncertainty values. To find these values, we determined the 3-$\sigma$ limit with Equation~\ref{e:limit} \citep{Leonard01}.

\begin{equation}

W\_{\lambda}(3\sigma) = 3 \Delta \lambda \Delta I \sqrt{\frac{W\_{\rm line}}{\Delta \lambda}} \sqrt{\frac{1}{B}},

\label{e:limit}\end{equation},

where $\Delta I$ is the RMS fluctuations of the normalized flux over and B is the number of bins per resolution element (2). Because the width of the line is at the resolution of the spectrum $\Delta \lambda$ (the spectral resolution ~2 or 3 pixels) and $W\_{\rm line}$ (the estimated width of the feature) are the same.

\section{Results}\label{s:results}

These are my results, seen in Figure~\ref{f:mgres}.

In our best measurements to date, we do not detect any significant change in any of the absorption features, consistent with studies of optical features for SN 2011fe (Patat et al., 2013) and SN 2014J (Welty et al., 2014; Goobar et al., 2014, Foley et al., 2014). We therefore do not detect a large amount of CSM along our line of sight.

\begin{figure}

\begin{center}

\includegraphics[angle=0,width=3.2in]{delta\_res}

\caption{Deviations in the EW from the average measurement of the \ion{Mg}{II} doublet and \ion{Mg}{I}, respectively. We do not detect any absorption at the redshift of the host galaxy for the three SNe not listed. When a feature is not detected, we plot the 3-$\sigma$ upper limit as a downward arrow. The measurements are all consistent with zero variability.}\label{f:mgres}

\end{center}

\end{figure}

\section{Discussion}\label{s:disc}

Discussion goes here.

\section{Future Work}\label{s:fw}

Future work goes here.

\bibliographystyle{mn2e}

\bibliography{astro\_refs}

\clearpage

\begin{deluxetable}{ccccccc}

\tabletypesize{\footnotesize}

\tablewidth{0pt}

\tablecaption{SNe Properties

\label{t:snep}}

\tablehead{

\colhead{SN} & \colhead{Host Galaxy} & \colhead{Host Galaxy Velocity (km s^{-1})} & \colhead{Right Ascension} & \colhead{Declination} & \colhead{Distance Modulus} & \colhead{Foreground Galactic Extinction}

}

\startdata

$SN1992A$ & $NGC 1380$ & $1877$ & $03h36m27.4s$ & $-34d57m31s$ & $31.72$ & $0.047$\\

$SN2011by$ & $NGC 3972$ & $852$ & $11h55m45.5s$ & $+55d19m32s$ & $32.01$ & $0.038$\\

$SN2011ek$ & $NGC 918$ & $1507$ & $02h25m48.9s$ & $+18d32m00s$ & $32.33$ & $0.979$\\

$SN2011fe$ & $M101$ & $241$ & $14h03m05.8s$ & $+54d16m25s$ & $29.06$ & $0.024$\\

$SN2011iv$ & $NGC 1404$ & $1947$ & $03h38m51.3s$ & $-35d35m32s$ & $31.39 (Galaxy)$ & $0.031$\\

$SN2012cg$ & $NGC 4424$ & $437$ & $12h27m12.8s$ & $+09d25m13s$ & $30.9$ & $0.057$\\

$SN2013dy$ & $NGC 7250$ & $1166$ & $22h18m17.6s$ & $+40d34m10s$ & $30.68 (Galaxy)$ & $0.421$\\

$SN2014J$ & $M82$ & $203$ & $09h55m42.1s$ & $+69d40m26s$ & $27.57$ & $0.435$\\

\enddata

\end{deluxetable}

\clearpage

\begin{deluxetable}{ccccccc}

\centering

\tabletypesize{\footnotesize}

\tablewidth{0pt}

\tablecaption{Observing Log

\label{t:obs}}

\tablehead{

\colhead{UT} & \colhead{Phase} & \colhead{Instrument} & \colhead{Grating} & \colhead{Exposure Time} & \colhead{Dataset} & \colhead{PI}\\

\colhead{(date)} & \colhead{(days)} & & & \colhead{(sec)} & &

}

\startdata

\multicolumn{7}{c}{SN~1992A}\\

$1992 Jan 24$ & $4.98$ & $FOS/RD$ & $MIRROR$ & $40$ & $Y0VQ0101T$ & $KIRSHNER$\\

$1992 Jan 24$ & $4.98$ & $FOS/RD$ & $MIRROR$ & $40$ & $Y0VQ0102T$ & $KIRSHNER$\\

$1992 Jan 24$ & $4.98$ & $FOS/RD$ & $G160L$ & $1499.99$ & $Y0VQ0103T$ & $KIRSHNER$\\

$1992 Jan 24$ & $4.98$ & $FOS/RD$ & $G270H$ & $1499.99$ & $Y0VQ0104T$ & $KIRSHNER$\\

$1992 Jan 24$ & $4.98$ & $FOS/RD$ & $G400H$ & $999.99$ & $Y0VQ0105T$ & $KIRSHNER$\\

$1992 Jan 24$ & $4.98$ & $GHRS$ & $MIRROR-N2$ & $0.2$ & $Z0VQ0506T$ & $KIRSHNER$\\

$1992 Jan 24$ & $4.98$ & $GHRS$ & $G270M$ & $3916.8$ & $Z0VQ0508T$ & $KIRSHNER$\\

$1992 Mar 04$ & $44.83$ & $FOS/RD$ & $MIRROR$ & $0.49$ & $Y0WA0201T$ & $KIRSHNER$\\

$1992 Mar 04$ & $44.83$ & $FOS/RD$ & $G160L$ & $1349.99$ & $Y0WA0202T$ & $KIRSHNER$\\

$1992 Mar 04$ & $44.83$ & $FOS/RD$ & $G160L$ & $1349.99$ & $Y0WA0203T$ & $KIRSHNER$\\

$1992 Mar 04$ & $44.83$ & $FOS/RD$ & $G270H$ & $1349.99$ & $Y0WA0204T$ & $KIRSHNER$\\

$1992 Mar 04$ & $44.83$ & $FOS/RD$ & $G270H$ & $1349.99$ & $Y0WA0205T$ & $KIRSHNER$\\

$1992 Mar 04$ & $44.83$ & $FOS/RD$ & $G400H$ & $1800$ & $Y0WA0206T$ & $KIRSHNER$\\

$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $MIRROR$ & $145.45$ & $Y1670101T$ & $KIRSHNER$\\

$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $G160L$ & $1999.98$ & $Y1670102T$ & $KIRSHNER$\\

$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $G160L$ & $1999.98$ & $Y1670103T$ & $KIRSHNER$\\

$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $G160L$ & $1999.98$ & $Y1670104T$ & $KIRSHNER$\\

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$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $G270H$ & $1999.98$ & $Y1670106T$ & $KIRSHNER$\\

$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $G270H$ & $1999.98$ & $Y1670107T$ & $KIRSHNER$\\

$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $G400H$ & $1999.98$ & $Y1670108T$ & $KIRSHNER$\\

$1992 Nov 05$ & $289.58$ & $FOS/RD$ & $G400H$ & $1999.98$ & $Y1670109T$ & $KIRSHNER$\\

\multicolumn{7}{c}{SN~2011by}\\

$2011 Apr 30$ & $-9.31$ & $STIS/CCD$ & $MIRVIS$ & $4.1$ & $OBND08D2Q$ & $ELLIS$\\

$2011 Apr 30$ & $-9.31$ & $STIS/CCD$ & $G430L$ & $2262.9$ & $OBND08010$ & $ELLIS$\\

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$2011 Apr 30$ & $-9.31$ & $STIS/NUV-MAMA$ & $G230L$ & $8300$ & $OBND13010$ & $ELLIS$\\

$2011 May 09$ & $-0.52$ & $STIS/CCD$ & $MIRVIS$ & $4.1$ & $OBND10CZQ$ & $ELLIS$\\

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$2011 May 09$ & $-0.52$ & $STIS/CCD$ & $MIRVIS$ & $4.1$ & $OBND14DEQ$ & $ELLIS$\\

$2011 May 09$ & $-0.52$ & $STIS/NUV-MAMA$ & $G230L$ & $5316$ & $OBND14010$ & $ELLIS$\\

\multicolumn{7}{c}{SN~2011ek}\\

$2011 Aug 12$ & $-3.32$ & $STIS/CCD$ & $MIRVIS$ & $4.1$ & $OBND36A1Q$ & $ELLIS$\\

$2011 Aug 12$ & $-3.32$ & $STIS/CCD$ & $G430L$ & $2100$ & $OBND36010$ & $ELLIS$\\

$2011 Aug 12$ & $-3.32$ & $STIS/CCD$ & $MIRVIS$ & $4.1$ & $OBND41APQ$ & $ELLIS$\\

$2011 Aug 12$ & $-3.32$ & $STIS/NUV-MAMA$ & $G230L$ & $8077$ & $OBND41010$ & $ELLIS$\\

$2011 Aug 19$ & $3.53$ & $STIS/CCD$ & $MIRVIS$ & $4.1$ & $OBND38ZZQ$ & $ELLIS$\\

$2011 Aug 19$ & $3.53$ & $STIS/CCD$ & $G430L$ & $2220$ & $OBND38010$ & $ELLIS$\\

$2011 Aug 19$ & $3.53$ & $STIS/CCD$ & $MIRVIS$ & $4.1$ & $OBND42A6Q$ & $ELLIS$\\

$2011 Aug 19$ & $3.53$ & $STIS/NUV-MAMA$ & $G230L$ & $5198$ & $OBND42010$ & $ELLIS$\\

\multicolumn{7}{c}{SN~2011fe}\\

$2011 Aug 28$ & $-13.11$ & $STIS/CCD$ & $MIRVIS$ & $2.1$ & $OBND43MFQ$ & $ELLIS$\\

$2011 Aug 28$ & $-13.11$ & $STIS/CCD$ & $G430L$ & $1200$ & $OBND43010$ & $ELLIS$\\

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$2011 Aug 28$ & $-13.11$ & $STIS/CCD$ & $MIRVIS$ & $2.1$ & $OBND48MSQ$ & $ELLIS$\\

$2011 Aug 28$ & $-13.11$ & $STIS/NUV-MAMA$ & $G230L$ & $5400$ & $OBND48010$ & $ELLIS$\\

$2011 Aug 31$ & $-10.04$ & $STIS/CCD$ & $MIRVIS$ & $30.1$ & $OBND44RWQ$ & $ELLIS$\\

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$2011 Sept 07$ & $-2.95$ & $STIS/CCD$ & $MIRVIS$ & $20.1$ & $OBND46ODQ$ & $ELLIS$\\

$2011 Sept 07$ & $-2.95$ & $STIS/CCD$ & $G230LB$ & $530$ & $OBND46010$ & $ELLIS$\\

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$$2011 Sept 07$ & $-2.95$ & $STIS/CCD$ & $G750L$ & $80$ & $OBND46060$ & $ELLIS$\\

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$2011 Sept 10$ & $0.04$ & $STIS/CCD$ & $MIRVIS$ & $20.1$ & $OBND47G5Q$ & $ELLIS$\\

$2011 Sept 10$ & $0.04$ & $STIS/CCD$ & $G230LB$ & $530$ & $OBND47010$ & $ELLIS$\\

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$2011 Sept 10$ & $0.04$ & $STIS/CCD$ & $G430L$ & $80$ & $OBND47030$ & $ELLIS$\\

$2011 Sept 10$ & $0.04$ & $STIS/CCD$ & $G430L$ & $80$ & $OBND47040$ & $ELLIS$\\

$2011 Sept 10$ & $0.04$ & $STIS/CCD$ & $G750L$ & $80$ & $OBND47050$ & $ELLIS$\\

$2011 Sept 10$ & $0.04$ & $STIS/CCD$ & $G750L$ & $80$ & $OBND47060$ & $ELLIS$\\

$2011 Sept 10$ & $0.04$ & $STIS/CCD$ & $G750L$ & $50$ & $OBND47070$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $MIRVIS$ & $20.1$ & $OBND50LMQ$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $G230LB$ & $415$ & $OBND50010$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $G230LB$ & $415$ & $OBND50020$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $G430L$ & $80$ & $OBND50030$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $G430L$ & $80$ & $OBND50040$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $G750L$ & $70$ & $OBND50050$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $G750L$ & $70$ & $OBND50060$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/CCD$ & $G750L$ & $50$ & $OBND50070$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/FUV-MAMA$ & $G140L$ & $2680$ & $OBND50080$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/FUV-MAMA$ & $G140L$ & $2930$ & $OBND50090$ & $ELLIS$\\

$2011 Sept 13$ & $3.25$ & $STIS/FUV-MAMA$ & $G140L$ & $2930$ & $OBND500A0$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $MIRVIS$ & $30.1$ & $OBND51DRQ$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $G230LB$ & $500$ & $OBND51010$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $G230LB$ & $500$ & $OBND51020$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $G430L$ & $80$ & $OBND51030$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $G430L$ & $80$ & $OBND51040$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $G750L$ & $70$ & $OBND51050$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $G750L$ & $70$ & $OBND51060$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/CCD$ & $G750L$ & $50$ & $OBND51070$ & $ELLIS$\\

$2011 Sept 19$ & $9.15$ & $STIS/NUV-MAMA$ & $G230L$ & $2720$ & $OBND51080$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/CCD$ & $MIRVIS$ & $40.1$ & $OBND52S6Q$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/CCD$ & $G430L$ & $600$ & $OBND52010$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/CCD$ & $G430L$ & $600$ & $OBND52020$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/CCD$ & $G750L$ & $190$ & $OBND52030$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/CCD$ & $G750L$ & $190$ & $OBND52040$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/CCD$ & $G750L$ & $50$ & $OBND52050$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/NUV-MAMA$ & $G230L$ & $1350$ & $OBND52060$ & $ELLIS$\\

$2011 Oct 01$ & $20.69$ & $STIS/NUV-MAMA$ & $G230L$ & $1350$ & $OBND52070$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/CCD$ & $MIRVIS$ & $0.9$ & $OBND53X3Q$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/CCD$ & $G430L$ & $660$ & $OBND53010$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/CCD$ & $G430L$ & $660$ & $OBND53020$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/CCD$ & $G750L$ & $310$ & $OBND53030$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/CCD$ & $G750L$ & $310$ & $OBND53040$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/CCD$ & $G750L$ & $50$ & $OBND53050$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/NUV-MAMA$ & $G230L$ & $1500$ & $OBND53060$ & $ELLIS$\\

$2011 Oct 07$ & $26.69$ & $STIS/NUV-MAMA$ & $G230L$ & $1500$ & $OBND53070$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/CCD$ & $MIRVIS$ & $1.1$ & $OBND54AVQ$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/CCD$ & $G430L$ & $610$ & $OBND54010$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/CCD$ & $G430L$ & $610$ & $OBND54020$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/CCD$ & $G750L$ & $420$ & $OBND54030$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/CCD$ & $G750L$ & $420$ & $OBND54040$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/CCD$ & $G750L$ & $50$ & $OBND54050$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/NUV-MAMA$ & $G230L$ & $1500$ & $OBND54060$ & $ELLIS$\\

$2011 Oct 21$ & $40.45$ & $STIS/NUV-MAMA$ & $G230L$ & $1500$ & $OBND54070$ & $ELLIS$\\

\multicolumn{7}{c}{SN~2011iv}\\

$2011 Dec 11$ & $0.6$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OBWR11SWQ$ & $FOLEY$\\

$2011 Dec 11$ & $0.6$ & $STIS/NUV-MAMA$ & $G230L$ & $2200$ & $OBWR11010$ & $FOLEY$\\

$2011 Dec 11$ & $0.6$ & $STIS/NUV-MAMA$ & $G230L$ & $1350$ & $OBWR11020$ & $FOLEY$\\

$2011 Dec 11$ & $0.6$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR11030$ & $FOLEY$\\

$2011 Dec 11$ & $0.6$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR11040$ & $FOLEY$\\

$2011 Dec 11$ & $0.6$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR11050$ & $FOLEY$\\

$2011 Dec 11$ & $0.6$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR11060$ & $FOLEY$\\

$2011 Dec 11$ & $0.6$ & $STIS/CCD$ & $G750L$ & $50$ & $OBWR11070$ & $FOLEY$\\

$2011 Dec 15$ & $5.41$ & $STIS/CCD$ & $MIRVIS 0.3$ & $OBWR12B1Q$ & $FOLEY$\\

$2011 Dec 15$ & $5.41$ & $STIS/NUV-MAMA$ & $G230L$ & $1400$ & $OBWR12010$ & $FOLEY$\\

$2011 Dec 15$ & $5.41$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR12020$ & $FOLEY$\\

$2011 Dec 15$ & $5.41$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR12030$ & $FOLEY$\\

$2011 Dec 15$ & $5.41$ & $STIS/CCD$ & $G750L$ & $50$ & $OBWR12040$ & $FOLEY$\\

$2011 Dec 20$ & $10.15$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OBWR13MBQ$ & $FOLEY$\\

$2011 Dec 20$ & $10.15$ & $STIS/NUV-MAMA$ & $G230L$ & $1400$ & $OBWR13010$ & $FOLEY$\\

$2011 Dec 20$ & $10.15$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR13020$ & $FOLEY$\\

$2011 Dec 20$ & $10.15$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR13030$ & $FOLEY$\\

$2011 Dec 20$ & $10.15$ & $STIS/CCD$ & $G750L$ & $50$ & $OBWR13040$ & $FOLEY$\\

$2011 Dec 24$ & $13.99$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OBWR14NFQ$ & $FOLEY$\\

$2011 Dec 24$ & $13.99$ & $STIS/NUV-MAMA$ & $G230L$ & $1400$ & $OBWR14010$ & $FOLEY$\\

$2011 Dec 24$ & $13.99$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR14020$ & $FOLEY$\\

$2011 Dec 24$ & $13.99$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR14030$ & $FOLEY$\\

$2011 Dec 24$ & $13.99$ & $STIS/CCD$ & $G750L$ & $50$ & $OBWR14040$ & $FOLEY$\\

$2011 Dec 28$ & $17.82$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OBWR15Q0Q$ & $FOLEY$\\

$2011 Dec 28$ & $17.82$ & $STIS/NUV-MAMA$ & $G230L$ & $1400$ & $OBWR15010$ & $FOLEY$\\

$2011 Dec 28$ & $17.82$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR15020$ & $FOLEY$\\

$2011 Dec 28$ & $17.82$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR15030$ & $FOLEY$\\

$2011 Dec 28$ & $17.82$ & $STIS/CCD$ & $G750L$ & $50$ & $OBWR15040$ & $FOLEY$\\

$2012 Jan 01$ & $21.72$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OBWR16ODQ$ & $FOLEY$\\

$2012 Jan 01$ & $21.72$ & $STIS/NUV-MAMA$ & $G230L$ & $1400$ & $OBWR16010$ & $FOLEY$\\

$2012 Jan 01$ & $21.72$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR16020$ & $FOLEY$\\

$2012 Jan 01$ & $21.72$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR16030$ & $FOLEY$\\

$2012 Jan 01$ & $21.72$ & $STIS/CCD$ & $G750L$ & $50$ & $OBWR16040$ & $FOLEY$\\

$2012 Jan 09$ & $29.52$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OBWR17AIQ$ & $FOLEY$\\

$2012 Jan 09$ & $29.52$ & $STIS/NUV-MAMA$ & $G230L$ & $1400$ & $OBWR17010$ & $FOLEY$\\

$2012 Jan 09$ & $29.52$ & $STIS/CCD$ & $G430L$ & $100$ & $OBWR17020$ & $FOLEY$\\

$2012 Jan 09$ & $29.52$ & $STIS/CCD$ & $G750L$ & $100$ & $OBWR17030$ & $FOLEY$\\

$2012 Jan 09$ & $29.52$ & $STIS/CCD$ & $G750L$ & $50$ & $OBWR17040$ & $FOLEY$\\

\multicolumn{7}{c}{SN~2012cg}\\

$2012 June 04$ & $2.5$ & $STIS/CCD$ & $MIRVIS$ & $0.5$ & $OBXB92E9Q$ & $GOOBAR$\\

$2012 June 04$ & $2.5$ & $STIS/CCD$ & $G230LB$ & $856$ & $OBXB92010$ & $GOOBAR$\\

$2012 June 04$ & $2.5$ & $STIS/CCD$ & $G230LB$ & $856$ & $OBXB92020$ & $GOOBAR$\\

$2012 June 04$ & $2.5$ & $STIS/CCD$ & $G430L$ & $156$ & $OBXB92030$ & $GOOBAR$\\

$2012 June 04$ & $2.5$ & $STIS/CCD$ & $G430L$ & $156$ & $OBXB92040$ & $GOOBAR$\\

$2012 June 18$ & $16.37$ & $STIS/CCD$ & $MIRVIS$ & $0.5$ & $OBXB93ELQ$ & $GOOBAR$\\

$2012 June 18$ & $16.37$ & $STIS/CCD$ & $G230LB$ & $856$ & $OBXB93010$ & $GOOBAR$\\

$2012 June 18$ & $16.37$ & $STIS/CCD$ & $G230LB$ & $856$ & $OBXB93020$ & $GOOBAR$\\

$2012 June 18$ & $16.37$ & $STIS/CCD$ & $G430L$ & $156$ & $OBXB93030$ & $GOOBAR$\\

$2012 June 18$ & $16.37$ & $STIS/CCD$ & $G430L$ & $156$ & $OBXB93040$ & $GOOBAR$\\

\multicolumn{7}{c}{SN~2013dy}\\

$2013 July 21$ & $-6.17$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB101HWQ$ & $FOLEY$\\

$2013 July 21$ & $-6.17$ & $STIS/NUV-MAMA$ & $G230L$ & $2200$ & $OCB101010$ & $FOLEY$\\

$2013 July 21$ & $-6.17$ & $STIS/NUV-MAMA$ & $G230L$ & $1418$ & $OCB101020$ & $FOLEY$\\

$2013 July 21$ & $-6.17$ & $STIS/CCD$ & $G430L$ & $336$ & $OCB101030$ & $FOLEY$\\

$2013 July 21$ & $-6.17$ & $STIS/CCD$ & $G750L$ & $336$ & $OCB101040$ & $FOLEY$\\

$2013 July 21$ & $-6.17$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB101050$ & $FOLEY$\\

$2013 July 25$ & $-2.09$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB102F7Q$ & $FOLEY$\\

$2013 July 25$ & $-2.09$ & $STIS/NUV-MAMA$ & $G230L$ & $1382$ & $OCB102010$ & $FOLEY$\\

$2013 July 25$ & $-2.09$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB102020$ & $FOLEY$\\

$2013 July 25$ & $-2.09$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB102030$ & $FOLEY$\\

$2013 July 25$ & $-2.09$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB102040$ & $FOLEY$\\

$2013 July 27$ & $-0.37$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB103OJQ$ & $FOLEY$\\

$2013 July 27$ & $-0.37$ & $STIS/NUV-MAMA$ & $G230L$ & $1382$ & $OCB103010$ & $FOLEY$\\

$2013 July 27$ & $-0.37$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB103020$ & $FOLEY$\\

$2013 July 27$ & $-0.37$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB103030$ & $FOLEY$\\

$2013 July 27$ & $-0.37$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB103040$ & $FOLEY$\\

$2013 July 29$ & $1.61$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB104B1Q$ & $FOLEY$\\

$2013 July 29$ & $1.61$ & $STIS/NUV-MAMA$ & $G230L$ & $1382$ & $OCB104010$ & $FOLEY$\\

$2013 July 29$ & $1.61$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB104020$ & $FOLEY$\\

$2013 July 29$ & $1.61$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB104030$ & $FOLEY$\\

$2013 July 29$ & $1.61$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB104040$ & $FOLEY$\\

$2013 Aug 01$ & $4.85$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB105Z2Q$ & $FOLEY$\\

$2013 Aug 01$ & $4.85$ & $STIS/NUV-MAMA$ & $G230L$ & $1382$ & $OCB105010$ & $FOLEY$\\

$2013 Aug 01$ & $4.85$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB105020$ & $FOLEY$\\

$2013 Aug 01$ & $4.85$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB105030$ & $FOLEY$\\

$2013 Aug 01$ & $4.85$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB105040$ & $FOLEY$\\

$2013 Aug 05$ & $8.76$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB106BUQ$ & $FOLEY$\\

$2013 Aug 05$ & $8.76$ & $STIS/NUV-MAMA G230L$ & $1382$ & $OCB106010$ & $FOLEY$\\

$2013 Aug 05$ & $8.76$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB106020$ & $FOLEY$\\

$2013 Aug 05$ & $8.76$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB106030$ & $FOLEY$\\

$2013 Aug 05$ & $8.76$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB106040$ & $FOLEY$\\

$2013 Aug 09$ & $12.36$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB107ZGQ$ & $FOLEY$\\

$2013 Aug 09$ & $12.36$ & $STIS/NUV-MAMA$ & $G230L$ & $1382$ & $OCB107010$ & $FOLEY$\\

$2013 Aug 09$ & $12.36$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB107020$ & $FOLEY$\\

$2013 Aug 09$ & $12.36$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB107030$ & $FOLEY$\\

$2013 Aug 09$ & $12.36$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB107040$ & $FOLEY$\\

$2013 Aug 11$ & $14.38$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB108NEQ$ & $FOLEY$\\

$2013 Aug 11$ & $14.38$ & $STIS/NUV-MAMA$ & $G230L$ & $1382$ & $OCB108010$ & $FOLEY$\\

$2013 Aug 11$ & $14.38$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB108020$ & $FOLEY$\\

$2013 Aug 11$ & $14.38$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB108030$ & $FOLEY$\\

$2013 Aug 11$ & $14.38$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB108040$ & $FOLEY$\\

$2013 Aug 15$ & $18.22$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB109R2Q$ & $FOLEY$\\

$2013 Aug 15$ & $18.22$ & $STIS/NUV-MAMA$ & $G230L$ & $1382$ & $OCB109010$ & $FOLEY$\\

$2013 Aug 15$ & $18.22$ & $STIS/CCD$ & $G430L$ & $64$ & $OCB109020$ & $FOLEY$\\

$2013 Aug 15$ & $18.22$ & $STIS/CCD$ & $G750L$ & $64$ & $OCB109030$ & $FOLEY$\\

$2013 Aug 15$ & $18.22$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB109040$ & $FOLEY$\\

$2013 Aug 17$ & $21.17$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB110EBQ$ & $FOLEY$\\

$2013 Aug 17$ & $21.17$ & $STIS/NUV-MAMA$ & $G230L$ & $2200$ & $OCB110010$ & $FOLEY$\\

$2013 Aug 17$ & $21.17$ & $STIS/NUV-MAMA$ & $G230L$ & $1418$ & $OCB110020$ & $FOLEY$\\

$2013 Aug 17$ & $21.17$ & $STIS/CCD$ & $G430L$ & $336$ & $OCB110030$ & $FOLEY$\\

$2013 Aug 17$ & $21.17$ & $STIS/CCD$ & $G750L$ & $336$ & $OCB110040$ & $FOLEY$\\

$2013 Aug 17$ & $21.17$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB110050$ & $FOLEY$\\

\multicolumn{7}{c}{SN~2014J}\\

$2014 Jan 26$ & $-6.5$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB150EZQ$ & $FOLEY$\\

$2014 Jan 26$ & $-6.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2235$ & $OCB150010$ & $FOLEY$\\

$2014 Jan 26$ & $-6.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2807$ & $OCB150020$ & $FOLEY$\\

$2014 Jan 26$ & $-6.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2807$ & $OCB150030$ & $FOLEY$\\

$2014 Jan 26$ & $-6.5$ & $STIS/NUV-MAMA$ & $G230L$ & $1724$ & $OCB150040$ & $FOLEY$\\

$2014 Jan 26$ & $-6.5$ & $STIS/CCD$ & $G430L$ & $300$ & $OCB150050$ & $FOLEY$\\

$2014 Jan 26$ & $-6.5$ & $STIS/CCD$ & $G750L$ & $200$ & $OCB150060$ & $FOLEY$\\

$2014 Jan 26$ & $-6.5$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB150070$ & $FOLEY$\\

$2014 Jan 28$ & $-4.5$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB151JRQ$ & $FOLEY$\\

$2014 Jan 28$ & $-4.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB151010$ & $FOLEY$\\

$2014 Jan 28$ & $-4.5$ & $STIS/NUV-MAMA$ & $G230L$ & $1747$ & $OCB151020$ & $FOLEY$\\

$2014 Jan 28$ & $-4.5$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB151030$ & $FOLEY$\\

$2014 Jan 28$ & $-4.5$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB151040$ & $FOLEY$\\

$2014 Jan 28$ & $-4.5$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB151050$ & $FOLEY$\\

$2014 Jan 30$ & $-2.5$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB152SXQ$ & $FOLEY$\\

$2014 Jan 30$ & $-2.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB152010$ & $FOLEY$\\

$2014 Jan 30$ & $-2.5$ & $STIS/NUV-MAMA$ & $G230L$ & $1747$ & $OCB152020$ & $FOLEY$\\

$2014 Jan 30$ & $-2.5$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB152030$ & $FOLEY$\\

$2014 Jan 30$ & $-2.5$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB152040$ & $FOLEY$\\

$2014 Jan 30$ & $-2.5$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB152050$ & $FOLEY$\\

$2014 Feb 01$ & $-0.5$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB153CVQ$ & $FOLEY$\\

$2014 Feb 01$ & $-0.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB153010$ & $FOLEY$\\

$2014 Feb 01$ & $-0.5$ & $STIS/NUV-MAMA$ & $G230L$ & $1747$ & $OCB153020$ & $FOLEY$\\

$2014 Feb 01$ & $-0.5$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB153030$ & $FOLEY$\\

$2014 Feb 01$ & $-0.5$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB153040$ & $FOLEY$\\

$2014 Feb 01$ & $-0.5$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB153050$ & $FOLEY$\\

$2014 Feb 04$ & $2.5$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB154M5Q$ & $FOLEY$\\

$2014 Feb 04$ & $2.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB154010$ & $FOLEY$\\

$2014 Feb 04$ & $2.5$ & $STIS/NUV-MAMA$ & $G230L$ & $153.66$ & $OCB154020$ & $FOLEY$\\

$2014 Feb 04$ & $2.5$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB154030$ & $FOLEY$\\

$2014 Feb 04$ & $2.5$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB154040$ & $FOLEY$\\

$2014 Feb 04$ & $2.5$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB154050$ & $FOLEY$\\

$2014 Feb 08$ & $6.5$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB155IRQ$ & $FOLEY$\\

$2014 Feb 08$ & $6.5$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB155010$ & $FOLEY$\\

$2014 Feb 08$ & $6.5$ & $STIS/NUV-MAMA$ & $G230L$ & $1747$ & $OCB155020$ & $FOLEY$\\

$2014 Feb 08$ & $6.5$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB155030$ & $FOLEY$\\

$2014 Feb 08$ & $6.5$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB155040$ & $FOLEY$\\

$2014 Feb 08$ & $6.5$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB155050$ & $FOLEY$\\

$2014 Feb 10$ & $8.49$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB156DBQ$ & $FOLEY$\\

$2014 Feb 10$ & $8.49$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB156010$ & $FOLEY$\\

$2014 Feb 10$ & $8.49$ & $STIS/NUV-MAMA$ & $G230L$ & $1747$ & $OCB156020$ & $FOLEY$\\

$2014 Feb 10$ & $8.49$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB156030$ & $FOLEY$\\

$2014 Feb 10$ & $8.49$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB156040$ & $FOLEY$\\

$2014 Feb 10$ & $8.49$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB156050$ & $FOLEY$\\

$2014 Feb 13$ & $11.49$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB157S6Q$ & $FOLEY$\\

$2014 Feb 13$ & $11.49$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB157010$ & $FOLEY$\\

$2014 Feb 13$ & $11.49$ & $STIS/NUV-MAMA$ & $G230L$ & $1747$ & $OCB157020$ & $FOLEY$\\

$2014 Feb 13$ & $11.49$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB157030$ & $FOLEY$\\

$2014 Feb 13$ & $11.49$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB157040$ & $FOLEY$\\

$2014 Feb 13$ & $11.49$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB157050$ & $FOLEY$\\

$2014 Feb 16$ & $14.49$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB158S9Q$ & $FOLEY$\\

$2014 Feb 16$ & $14.49$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB158010$ & $FOLEY$\\

$2014 Feb 16$ & $14.49$ & $STIS/NUV-MAMA$ & $G230L$ & $1747$ & $OCB158020$ & $FOLEY$\\

$2014 Feb 16$ & $14.49$ & $STIS/CCD$ & $G430L$ & $160$ & $OCB158030$ & $FOLEY$\\

$2014 Feb 16$ & $14.49$ & $STIS/CCD$ & $G750L$ & $100$ & $OCB158040$ & $FOLEY$\\

$2014 Feb 16$ & $14.49$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB158050$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB159IAQ$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/NUV-MAMA$ & $G230L$ & $2235$ & $OCB159010$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/NUV-MAMA$ & $G230L$ & $2807$ & $OCB159020$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/NUV-MAMA$ & $G230L$ & $2807$ & $OCB159030$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/NUV-MAMA$ & $G230L$ & $1724$ & $OCB159040$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/CCD$ & $G430L$ & $300$ & $OCB159050$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/CCD$ & $G750L$ & $200$ & $OCB159060$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/CCD$ & $G750L$ & $50$ & $OCB159070$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/CCD$ & $MIRVIS$ & $0.3$ & $OCB160JZQ$ & $FOLEY$\\

$2014 Feb 26$ & $24.05$ & $STIS/NUV-MAMA$ & $G230L$ & $2255$ & $OCB160010$ & $FOLEY$\\

\enddata

\end{deluxetable}

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\begin{deluxetable}{llllllllll}

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\tabletypesize{\footnotesize}

\tablewidth{0pt}

\tablecaption{Measurements of Observed SNe \label{t:sne}}

\tablehead{

\colhead{UT} & \colhead{Phase} & \colhead{\ion{Fe}{II}} & \colhead{FeII} & \colhead{FeII} & \colhead{FeII} & \colhead{FeII} & \colhead{MgII} & \colhead{MgII} & \colhead{MgI}\\

\colhead{(days)} & \colhead{(d)} & \colhead{(2344.22 \AA)} & \colhead{(2374.46 \AA)} & \colhead{(2382.76 \AA)} & \colhead{(2586.65 \AA)} & \colhead{(2600.17 \AA)} & \colhead{(2796.35 \AA)} & \colhead{(2803.53 \AA)} & \colhead{(2852.96 \AA)}

}

\startdata

\multicolumn{10}{c}{SN~1992A}\\

$19920124.21$ & $4.98$ & $0.91$ & $1.44$ & $1.59$ & $1.59$ & $1.84$ & $0.32$ & $0.57$ & $0.6$\\

$19920304.31$ & $44.83$ & $1.81$ & $1.78$ & $3.06$ & $5.03$ & $4.75$ & $1.3$ & $1.25$ & $1.89$\\

$19921105.59$ & $289.58$ & $138.94$ & $14.32$ & $52.77$ & $95.3$ & $95.35$ & $3.37$ & $3.06$ & $2.01$\\

\multicolumn{10}{c}{SN~2011by}\\

$20110430.56$ & $-9.31$ & $1.24$ & $1.33$ & $1.34$ & $0.8$ & $0.54$ & $1.23^{+0.12}\_{-0.15}$ & $1.23^{+0.12}\_{-0.15}$ & $0.86^{+0.14}\_{-0.14}$\\

$20110509.38$ & $-0.52$ & $0.59^{+0.1}\_{-0.13}$ & $1.25^{+0.32}\_{-0.3}$ & $1.12^{+0.17}\_{-0.17}$ & $1.15^{+0.29}\_{-0.29}$ & $0.78^{+0.04}\_{-0.04}$ & $1.21^{+0.18}\_{-0.16}$ & $1.2^{+0.16}\_{-0.16}$ & $0.62^{+0.06}\_{-0.06}$\\

\multicolumn{10}{c}{SN~2011ek}\\

$20110812.56$ & $-3.32$ & $4.27$ & $6.44$ & $5.52$ & $4.32$ & $6.2$ & $2.01$ & $1.38$ & $1.62$\\

$20110819.45$ & $3.53$ & $6.54$ & $14.03$ & $51.01$ & $70.52$ & $93.52$ & $3.56$ & $3.37$ & $1.71$\\

\multicolumn{10}{c}{SN~2011fe}\\

$20110828.17$ & $-13.11$ & $2.17^{+0.41}\_{-0.57}$ & $1.24^{+0.05}\_{-0.07}$ & $3.45^{+0.3}\_{-0.34}$ & $1.66^{+0.66}\_{-0.71}$ & $2.33^{+0.65}\_{-1.01}$ & $2.56^{+0.12}\_{-0.12}$ & $2.0^{+0.13}\_{-0.14}$ & $0.77^{+0.09}\_{-0.09}$\\

$20110831.27$ & $-10.04$ & $1.37^{+0.51}\_{-0.21}$ & $1.05^{+0.09}\_{-0.09}$ & $2.0^{+0.19}\_{-0.19}$ & $2.28^{+0.24}\_{-0.4}$ & $2.0^{+0.16}\_{-0.28}$ & $2.44^{+0.12}\_{-0.12}$ & $2.29^{+0.07}\_{-0.07}$ & $0.48^{+0.09}\_{-0.07}$\\

$20110903.43$ & $-6.91$ & $1.36^{+0.06}\_{-0.06}$ & $0.95^{+0.1}\_{-0.1}$ & $1.9^{+0.11}\_{-0.11}$ & $1.3^{+0.21}\_{-0.17}$ & $1.83^{+0.19}\_{-0.18}$ & $2.92^{+0.14}\_{-0.14}$ & $2.55^{+0.19}\_{-0.17}$ & $0.72^{+0.06}\_{-0.06}$\\

$20110907.42$ & $-2.95$ & $1.5^{+0.08}\_{-0.08}$ & $0.75^{+0.02}\_{-0.02}$ & $1.92^{+0.05}\_{-0.05}$ & $1.17^{+0.2}\_{-0.18}$ & $1.91^{+0.09}\_{-0.06}$ & $2.92^{+0.1}\_{-0.1}$ & $2.61^{+0.21}\_{-0.21}$ & $0.68^{+0.06}\_{-0.06}$\\

$20110910.44$ & $0.04$ & $1.21^{+0.05}\_{-0.05}$ & $0.85^{+0.05}\_{-0.04}$ & $1.93^{+0.07}\_{-0.07}$ & $1.06^{+0.17}\_{-0.16}$ & $1.75^{+0.09}\_{-0.08}$ & $2.88^{+0.1}\_{-0.12}$ & $2.66^{+0.16}\_{-0.16}$ & $0.6^{+0.06}\_{-0.06}$\\

$20110913.68$ & $3.25$ & $2.51^{+0.36}\_{-0.37}$ & $1.09^{+0.29}\_{-0.26}$ & $1.59^{+0.25}\_{-0.23}$ & $1.28^{+0.4}\_{-0.38}$ & $1.73^{+0.27}\_{-0.26}$ & $2.96^{+0.04}\_{-0.03}$ & $2.15^{+0.1}\_{-0.1}$ & $0.65^{+0.04}\_{-0.06}$\\

$20110919.63$ & $9.15$ & $1.44^{+0.1}\_{-0.1}$ & $0.71^{+0.0}\_{-0.01}$ & $1.78^{+0.1}\_{-0.1}$ & $1.17^{+0.04}\_{-0.05}$ & $1.77^{+0.05}\_{-0.07}$ & $2.7^{+0.04}\_{-0.08}$ & $2.43^{+0.09}\_{-0.08}$ & $0.56^{+0.04}\_{-0.05}$\\

$20111001.27$ & $20.69$ & $1.66^{+0.1}\_{-0.11}$ & $0.69^{+0.13}\_{-0.13}$ & $1.64^{+0.22}\_{-0.12}$ & $1.16^{+0.18}\_{-0.32}$ & $1.77^{+0.31}\_{-0.52}$ & $2.59^{+0.09}\_{-0.09}$ & $2.19^{+0.03}\_{-0.04}$ & $0.56^{+0.12}\_{-0.06}$\\

$20111007.32$ & $26.69$ & $1.21^{+0.09}\_{-0.09}$ & $1.25^{+0.09}\_{-0.11}$ & $1.88^{+0.14}\_{-0.18}$ & $0.89^{+0.18}\_{-0.15}$ & $1.52^{+0.43}\_{-0.35}$ & $2.68^{+0.05}\_{-0.05}$ & $2.21^{+0.08}\_{-0.08}$ & $0.59^{+0.13}\_{-0.15}$\\

$20111021.2$ & $40.45$ & $1.31^{+0.15}\_{-0.15}$ & $0.93^{+0.12}\_{-0.12}$ & $1.93^{+0.16}\_{-0.17}$ & $0.95^{+0.11}\_{-0.1}$ & $2.19^{+0.18}\_{-0.18}$ & $2.78^{+0.1}\_{-0.11}$ & $1.84^{+0.09}\_{-0.08}$ & $0.78^{+0.09}\_{-0.07}$\\

\multicolumn{10}{c}{SN~2011iv}\\

$20111211.1$ & $0.6$ & $0.22$ & $0.15$ & $0.12$ & $0.15$ & $0.17$ & $0.09$ & $0.13$ & $0.08$\\

$20111215.94$ & $5.41$ & $0.45$ & $0.42$ & $0.43$ & $0.39$ & $0.27$ & $0.18$ & $0.19$ & $0.19$\\

$20111220.72$ & $10.15$ & $0.71$ & $0.45$ & $0.62$ & $0.36$ & $0.45$ & $0.3$ & $0.39$ & $0.32$\\

$20111224.58$ & $13.99$ & $1.24$ & $0.89$ & $1.13$ & $0.5$ & $0.55$ & $0.46$ & $0.34$ & $0.28$\\

$20111228.44$ & $17.82$ & $0.78$ & $1.55$ & $1.47$ & $0.78$ & $0.68$ & $0.66$ & $0.69$ & $0.38$\\

$20120101.36$ & $21.72$ & $1.01$ & $1.28$ & $1.1$ & $0.67$ & $0.81$ & $0.55$ & $0.92$ & $0.63$\\

$20120109.21$ & $29.52$ & $1.03$ & $1.0$ & $1.28$ & $1.03$ & $1.13$ & $0.95$ & $0.72$ & $1.14$\\

\multicolumn{10}{c}{SN~2012cg}\\

$20120604.5$ & $2.5$ & $1.86$ & $1.59$ & $1.43$ & $0.86$ & $0.51$ & $1.36^{+2.24}\_{-0.1}$ & $1.35^{+1.62}\_{-0.1}$ & $1.2^{+0.15}\_{-0.14}$\\

$20120618.4$ & $16.37$ & $2.96$ & $1.6$ & $1.35$ & $1.09$ & $1.46$ & $1.64^{+0.02}\_{-0.03}$ & $1.63^{+0.02}\_{-0.03}$ & $1.29^{+0.14}\_{-0.13}$\\

\multicolumn{10}{c}{SN~2013dy}\\

$20130721.5$ & $-6.17$ & $3.07^{+0.52}\_{-0.59}$ & $1.37^{+0.11}\_{-0.17}$ & $0.86^{+0.29}\_{-0.32}$ & $3.86^{+0.29}\_{-0.29}$ & $2.4^{+1.69}\_{-1.69}$ & $1.58^{+1.32}\_{-0.09}$ & $1.58^{+1.27}\_{-0.08}$ & $0.79^{+0.12}\_{-0.14}$\\

$20130725.61$ & $-2.09$ & $0.86$ & $1.37$ & $1.33$ & $2.78^{+0.43}\_{-0.43}$ & $1.63^{+0.28}\_{-0.28}$ & $0.0^{+0.81}\_{-0.06}$ & $0.0^{+0.3}\_{-0.02}$ & $0.92^{+0.15}\_{-0.15}$\\

$20130727.34$ & $-0.37$ & $0.59$ & $1.76$ & $1.36$ & $2.31^{+0.73}\_{-0.99}$ & $1.01^{+0.95}\_{-0.61}$ & $1.62^{+0.14}\_{-0.33}$ & $1.61^{+0.14}\_{-0.31}$ & $0.86^{+0.19}\_{-0.2}$\\

$20130729.32$ & $1.61$ & $0.91$ & $1.19$ & $1.03$ & $2.63^{+0.61}\_{-0.61}$ & $1.0^{+0.58}\_{-0.35}$ & $1.65^{+1.19}\_{-0.17}$ & $1.64^{+1.03}\_{-0.17}$ & $0.67^{+0.2}\_{-0.2}$\\

$20130801.59$ & $4.85$ & $1.21$ & $0.86$ & $0.92$ & $2.31^{+0.33}\_{-0.33}$ & $0.82^{+0.49}\_{-0.49}$ & $0.85^{+0.08}\_{-0.48}$ & $0.72^{+0.06}\_{-0.53}$ & $0.57^{+0.08}\_{-0.07}$\\

$20130805.51$ & $8.76$ & $1.63^{+0.41}\_{-0.36}$ & $1.89^{+0.74}\_{-0.79}$ & $1.33^{+1.01}\_{-0.68}$ & $2.09^{+0.45}\_{-0.46}$ & $1.77^{+0.76}\_{-1.02}$ & $1.81^{+1.1}\_{-0.14}$ & $1.8^{+0.96}\_{-0.14}$ & $0.9^{+0.08}\_{-0.08}$\\

$20130809.11$ & $12.36$ & $1.22$ & $1.66$ & $0.76$ & $3.53^{+1.11}\_{-1.33}$ & $3.24^{+0.79}\_{-1.31}$ & $1.93^{+0.05}\_{-0.08}$ & $1.92^{+0.05}\_{-0.08}$ & $0.84^{+0.17}\_{-0.17}$\\

$20130811.15$ & $14.38$ & $3.22^{+1.0}\_{-1.05}$ & $2.86^{+0.78}\_{-0.99}$ & $3.68^{+1.51}\_{-1.75}$ & $1.15$ & $1.16$ & $2.26^{+0.11}\_{-0.28}$ & $2.23^{+0.1}\_{-0.29}$ & $0.23^{+0.15}\_{-0.16}$\\

$20130815.01$ & $18.22$ & $2.02$ & $1.62$ & $1.32$ & $0.95$ & $2.35$ & $3.29^{+1.78}\_{-1.07}$ & $2.82^{+1.46}\_{-0.99}$ & $0.64$\\

$20130817.94$ & $21.17$ & $1.98$ & $1.63$ & $1.68$ & $2.64^{+0.24}\_{-0.24}$ & $1.57^{+0.55}\_{-1.12}$ & $2.82^{+1.29}\_{-0.73}$ & $3.01^{+1.26}\_{-0.75}$ & $0.74^{+0.39}\_{-0.35}$\\

\multicolumn{10}{c}{SN~2014J}\\

$20140126.6$ & $-6.5$ & $19.25$ & $12.14$ & $22.8$ & $3.36$ & $2.36$ & $2.97^{+0.17}\_{-0.17}$ & $3.18^{+0.13}\_{-0.13}$ & $1.51^{+0.24}\_{-0.16}$\\

$20140128.44$ & $-4.5$ & $10.63$ & $6.34$ & $5.55$ & $2.62$ & $1.84$ & $3.05^{+0.19}\_{-0.19}$ & $3.21^{+0.18}\_{-0.18}$ & $1.93^{+0.16}\_{-0.16}$\\

$20140130.49$ & $-2.5$ & $19.39$ & $34.54$ & $37.38$ & $2.64$ & $3.69$ & $3.62^{+0.32}\_{-0.29}$ & $3.43^{+0.37}\_{-0.38}$ & $2.09^{+0.12}\_{-0.12}$\\

$20140201.61$ & $-0.5$ & $33.05$ & $21.6$ & $56.35$ & $4.7$ & $2.27$ & $3.52^{+0.41}\_{-0.43}$ & $3.5^{+0.61}\_{-0.55}$ & $1.35^{+0.34}\_{-0.29}$\\

$20140204.73$ & $2.5$ & $36.54$ & $167.71$ & $79.96$ & $5.04$ & $7.22$ & $3.3^{+0.49}\_{-0.77}$ & $2.85^{+0.35}\_{-0.4}$ & $1.66^{+0.34}\_{-0.35}$\\

$20140208.53$ & $6.5$ & $32.87$ & $17.37$ & $17.95$ & $4.88$ & $2.88$ & $2.72^{+0.4}\_{-0.42}$ & $3.07^{+0.48}\_{-0.45}$ & $1.51^{+0.18}\_{-0.19}$\\

$20140210.44$ & $8.49$ & $184.37$ & $9.1$ & $16.32$ & $4.25$ & $4.25$ & $3.28^{+0.21}\_{-0.25}$ & $3.66^{+0.34}\_{-0.35}$ & $0.94^{+0.19}\_{-0.19}$\\

$20140213.29$ & $11.49$ & $8.08$ & $35.36$ & $10.33$ & $172.19$ & $168.98$ & $3.5^{+0.36}\_{-0.42}$ & $2.8^{+0.54}\_{-0.73}$ & $4.88^{+0.33}\_{-0.33}$\\

$20140216.41$ & $14.49$ & $16.24$ & $9.44$ & $217.64$ & $5.09$ & $7.04$ & $2.47^{+1.17}\_{-1.1}$ & $1.98^{+0.78}\_{-0.8}$ & $3.05^{+1.4}\_{-1.31}$\\

$20140226.07$ & $24.05$ & $11.52$ & $23.68$ & $6.04$ & $17.56$ & $106.42$ & $5.6^{+1.79}\_{-3.05}$ & $5.35^{+2.03}\_{-2.49}$ & $3.42^{+1.52}\_{-1.97}$\\

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