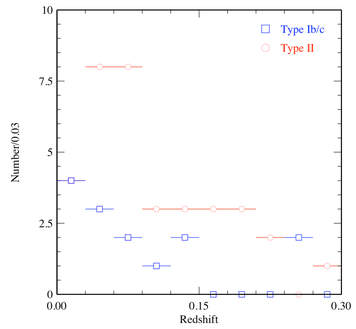
Core Collapse SN in SDSS II Supernova Survey

David Cinabro, Wayne State University representing the SDSS II Supernova Survey and spectroscopic follow-up teams

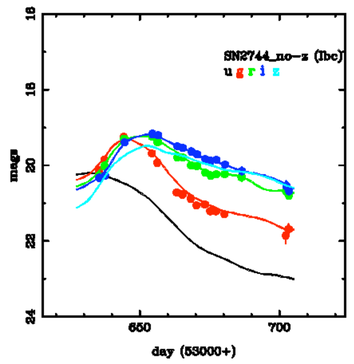
Core collapse SN are not the focus of the survey, SNIa have priority for spectroscopic resources, but the rolling search with spectroscopic follow up does find a useful sample of them:

	Type Ib/c		Type II	
	SDSS	IAUC Total	SDSS	IAUC Total
2004	1	22	5	72
2005	7	33	8	73
2006	7	24	19	112
Total	15	79	42	259

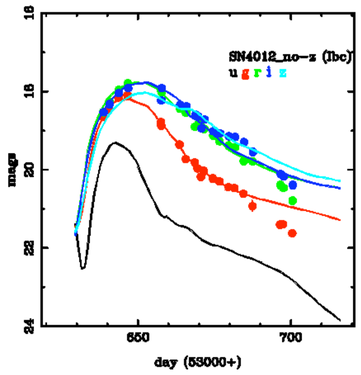


Some Examples (times are relative to peak):

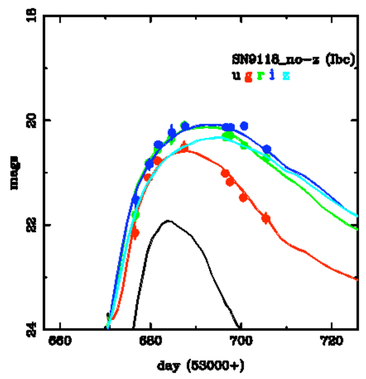
2005hm: Type Ib



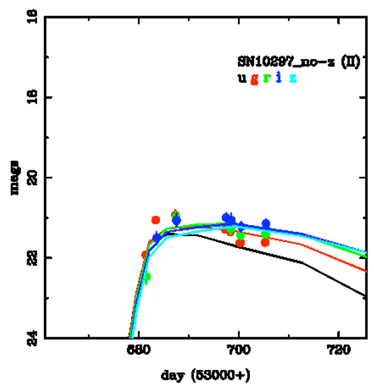
SN4012: Type Ic



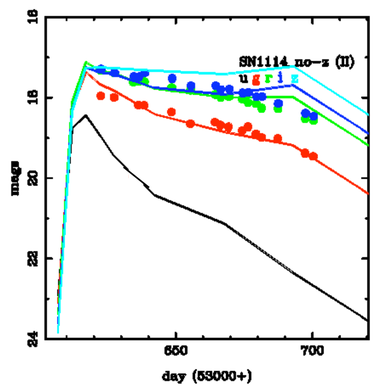
2005kr: "Hypernova"

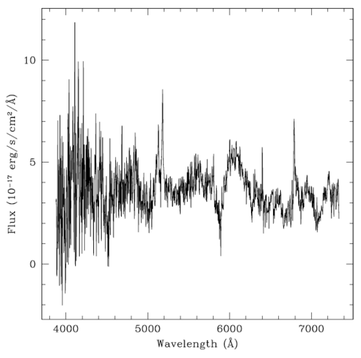


2005mk: IIn

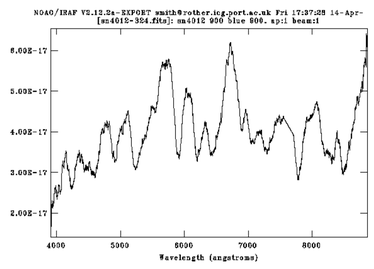


2005lb: IIP

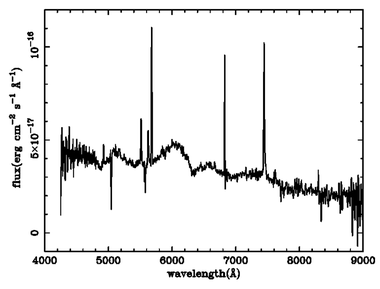




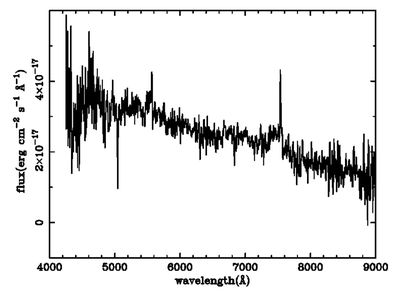
z=0.034, t=+14 days



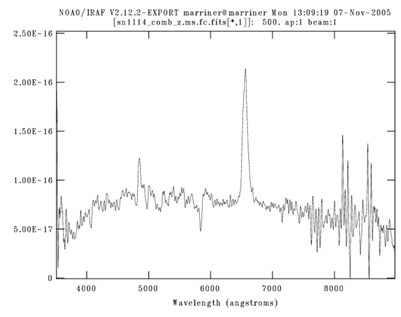
t=0.025, t=+11 days



z=0.134, t=+9 days



z=0.153, t=+21 days



z=0.026, t=+42 days

Spectra are from partners at APO, HET, Keck, KPNO, Magellan, MDM, NOT, NTT, SALT, Subaru, WHT

Both light curves and spectra are very diverse. Two science projects with this data:

1) Observe diversity and try to find some patterns. Should have a final sample of ~25 Type Ib/c and ~50 Type II.

2) Measure Core Collapse rate.

A) Need photometric typing. Difficult for CCSN.

B) See Johnson/Crotts astro-ph/0511377, Kuznetsova/Connolly astro-ph/0609637, Poznanski/Moaz/Gal-Yam astro-ph/0610129).

C) Preliminary work by SDSS II SN

1) Best probability for the observed light curve to match a SN spectral template

2) Grid of redshift, extinction (Av), stretch for SNIa or a library of CCSN from Peter Nugent, SUSPECT database, plus derived from our own sample.

3) Works well on spectroscopically identified SNIa, but less well on CCSN.