Supernovae subgroup

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Science

Time Critical

- Complete the parameter space of transients
- Unknown, fast transient
- Follow-up interesting transients

Not Time Critical

- SN Ia cosmology
- Precursor Eruption of SNe
- Late time behavior of SNe
- Environment studies (Metallicity, SFR, ..)
- Progenitor studies

Not Time Critical

of supernovae detected

Type
Distance
localization
absolute mag
phase

Not Time Critical

of supernovae detected

- Progenitor studies

SN image

Progenitor star

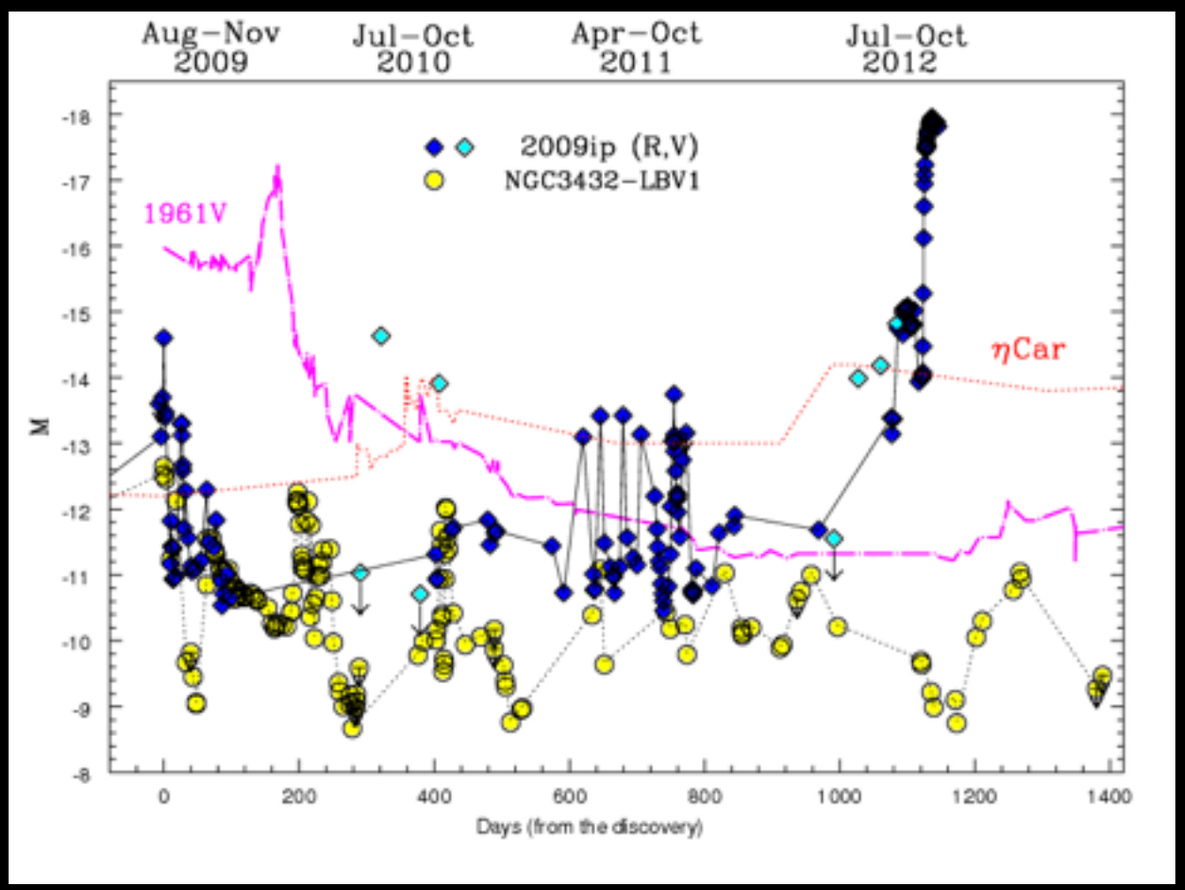
Type
Distance
localization
absolute mag
phase

Not Time Critical

of supernovae detected

- Progenitor studies
- Precursor Eruption of SNe

Type
Distance
localization
absolute mag
phase

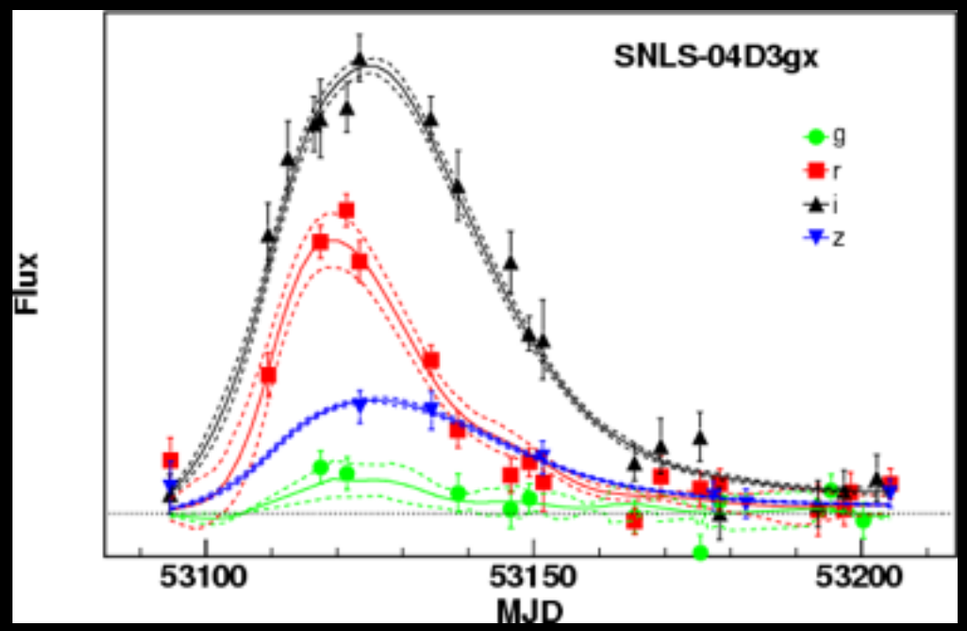


Pastorrello+ 2011, Margutti+ 2014, Graham+ 2014, Fraser+ 2015,……..

Not Time Critical

of supernovae detected

- Progenitor studies
- Precursor Eruption of SNe
- SN Ia cosmology



Guy+ 2007

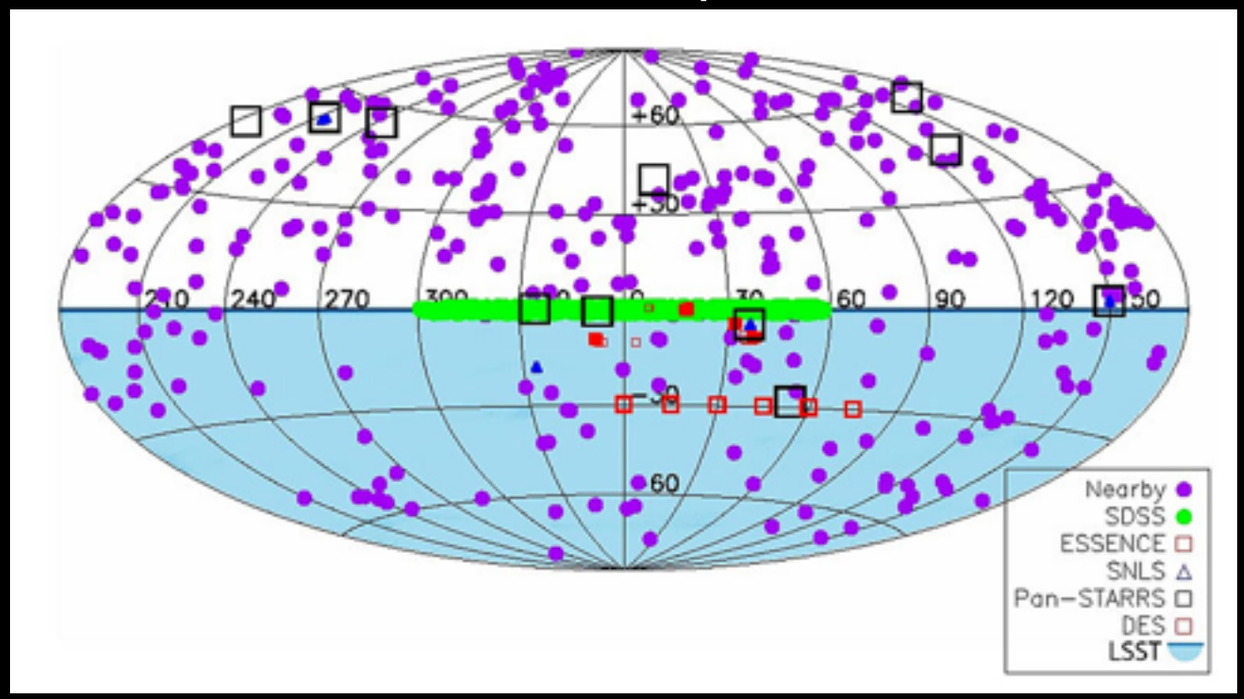
Type
Distance
localization
absolute mag
phase

Not Time Critical

of supernovae detected

- Progenitor studies
- Precursor Eruption of SNe
- SN Ia cosmology
- Environment studies (Metallicity, SF, Galaxy type)
- Late time behavior of SNe
- Rates of Supernovae

Type
Distance
localization
absolute mag
phase



Time Critical

follow-up interesting SN

- You need time to chose what to follow-up with other facilities

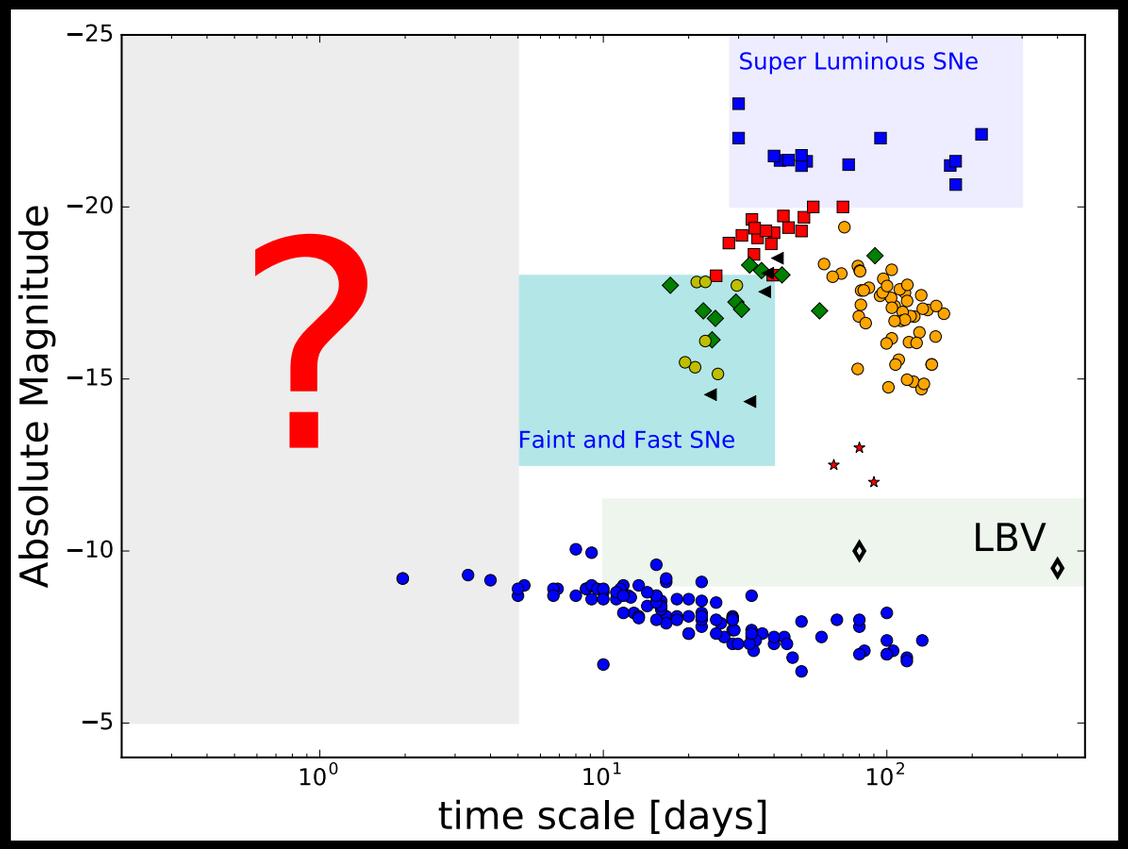
Type
Distance
location
absolute mag
phase
early discovery
early classification

Time Critical

follow-up interesting SN

- You need time to chose what to follow-up with other facilities

- Complete the parameter space of transients
- Unknown, fast transient



Type
Distance
location
absolute mag
phase
early discovery
early classification

Time Critical

follow-up interesting SN

- You need time to chose what to follow-up with other facilities

- Complete the parameter space of transients
- Unknown, fast transient
- Learn about the progenitor form early observations (All Supernovae)
- Study Supernovae as a function of redshift (SLSN, SNe Ibc, Ia)

Type
Distance
location
absolute mag
phase
early discovery
early classification

Subgroup Supernovae

Fast Transients

Gravitational Waves

Cosmological

Non-degenerate Eruptive Variables

Multiwavelength Characterization/ Counterparts

Which survey is good for SN science ?

Time Critical

- Complete the parameter space of transients
- Unknown, fast transient
- Follow-up interesting transients

Not Time Critical

- SN Ia cosmology
- Precursor Eruption of SNe
- Late time behavior of SNe
- Environment studies (Metallicity, SFR, ..)
- Progenitor studies

Deep-Wide Fast survey

median single-visit depths (23.14, 24.47, 24.16, 23.40, 22.23, 21.57)

2x15s in one filter, 2x15 s in the same filter (30min-2h later ?),

maybe third visit few hours later (different filter ?)

same field in a different filter few (3-5 days ?) later

Deep Drilling Fields:

one night all filters continuously ? 4-8 days later ?

Rolling cadence

similar that DWF
but each year increase cadence in some fields

Classification

Time Critical

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Not Time Critical

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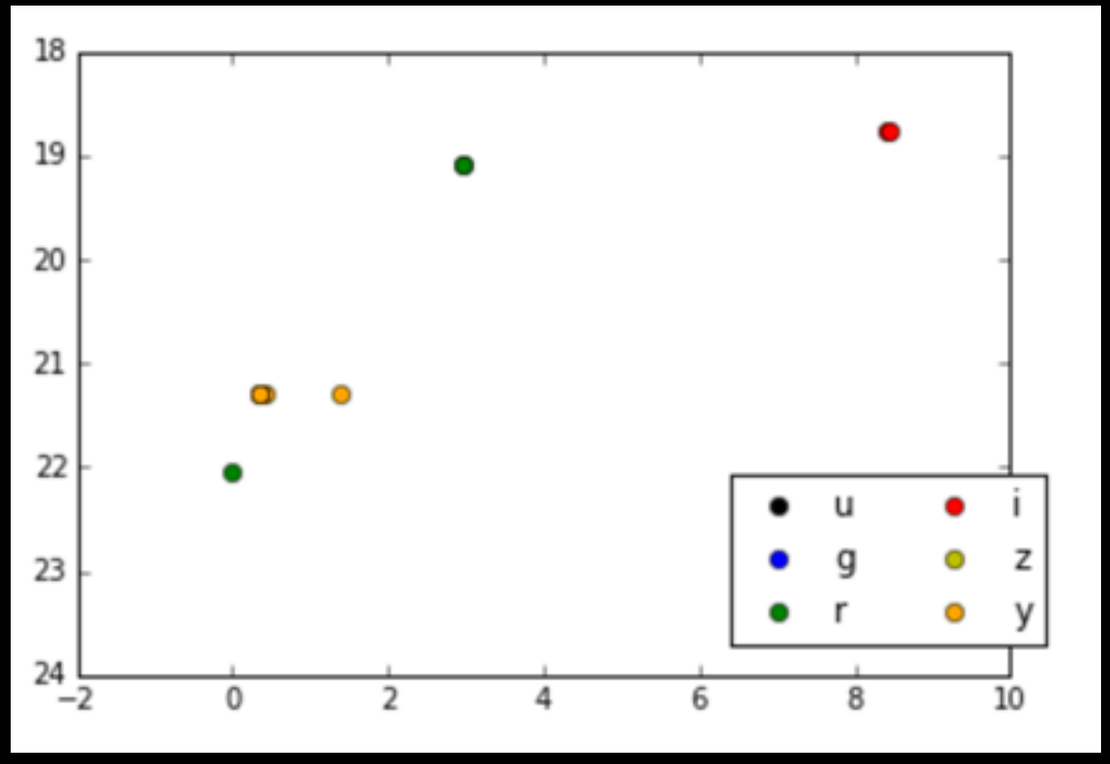
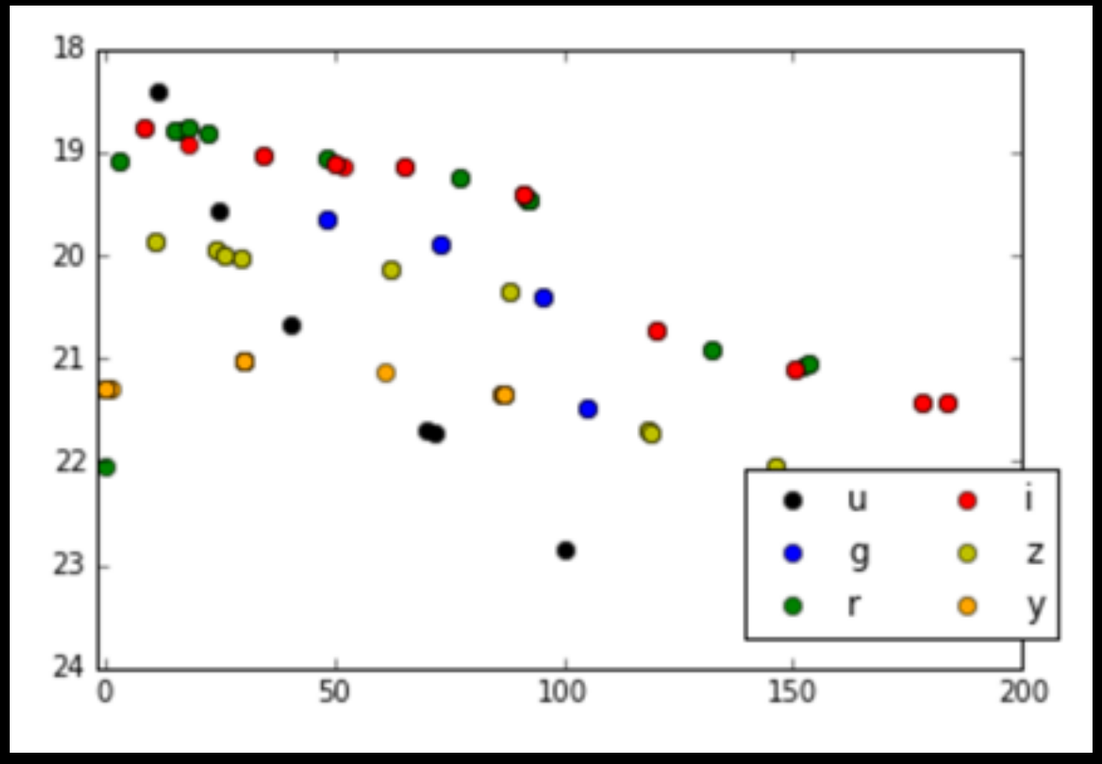
- Progenitor studies





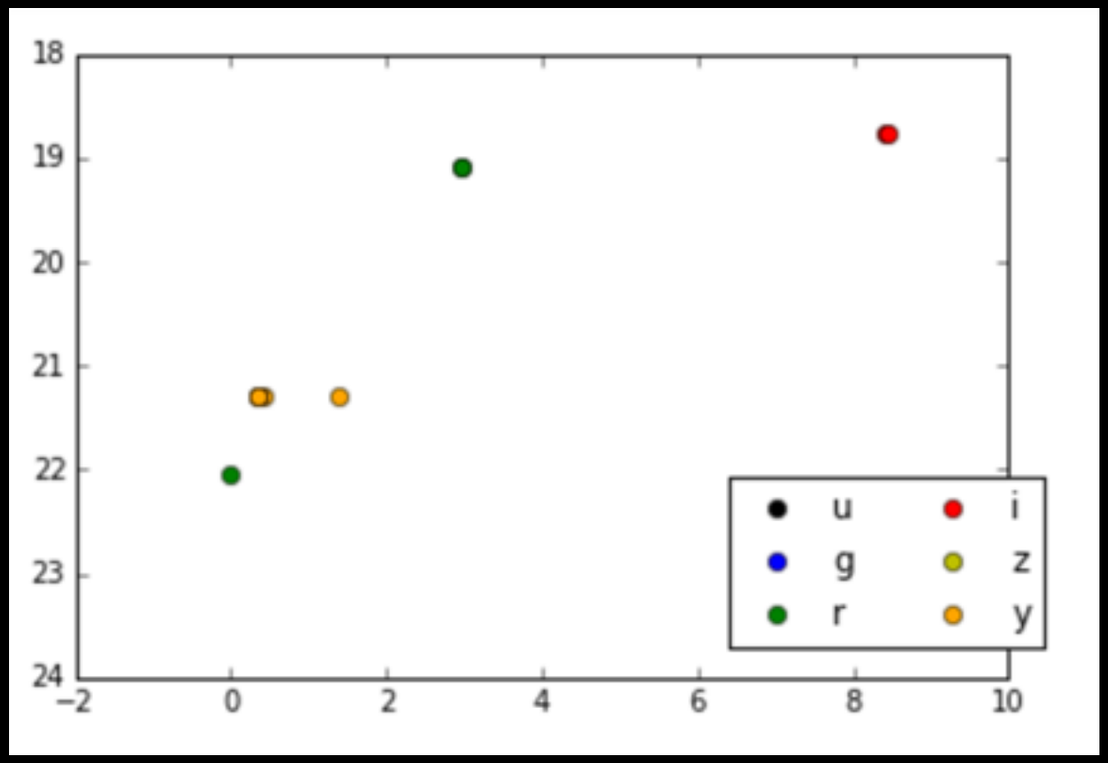
run: enigma_1189

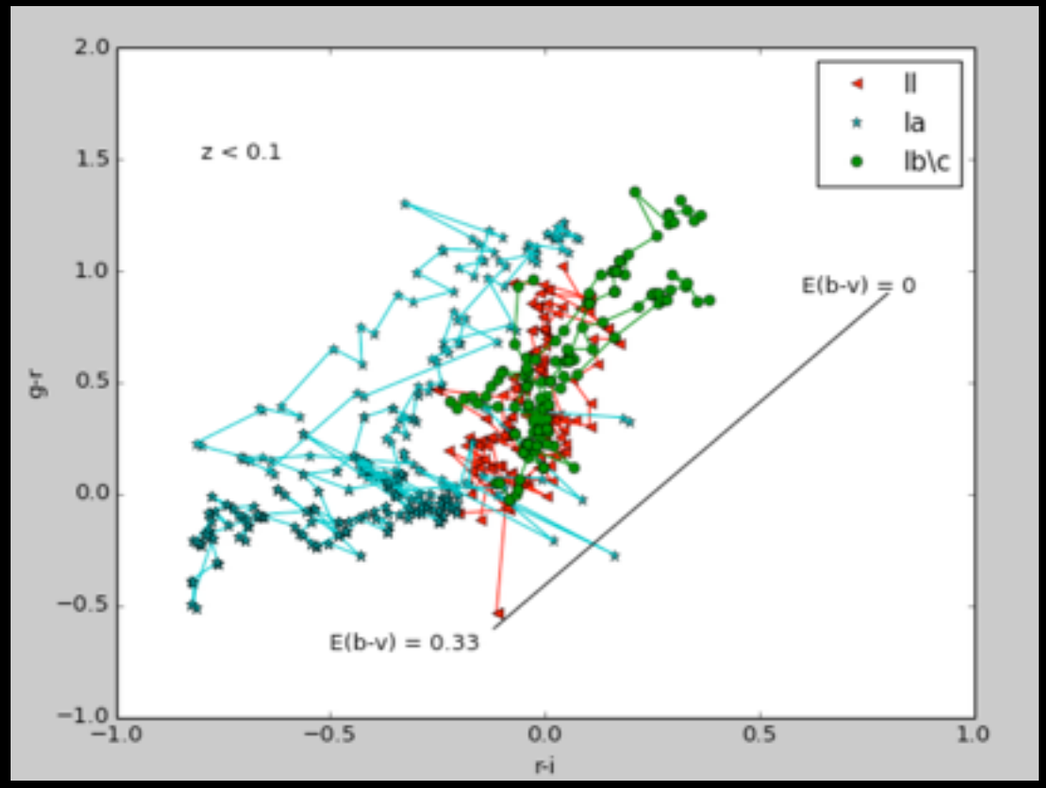
Try to use color information and two exposures int he same night to classify and select interesting objects

Deep-Wide Fast survey

r - r - - - - i
i - i - - - - z

Color
rise time





How far should be the two exposures to use the Rise time information ?

Color informations ?

Goal for this workshop

- List of clear science goals
- Start to use the MAF to understand what we need to get “fast classification”
- Can we do “time critical” science with the main survey ?
- Where are we in collecting template of different transients?