



Intro +
motivation,
HU+OKC science

Schedule

Tuesday afternoon 1 (1pm-3pm)

Intro+motivation, HU/OKC science
Science at Weizmann

Ampel

- Overview and implementation

Tuesday afternoon 2 (4pm-6pm)

T0 Session: Filters

- DESY/Neutrino projects and filter

T1 Session: Data tracking and retrieval

Image (re)processing, ZOGY

- Is this necessary?
- What algorithms exists?
- What is missing?

Dinner 19pm, Zeuthen “downtown”
(15 min walk)

Wednesday morning (9am-1230pm)

Wiserep/TNS

- How can these tools be used?
- How could we interact with them?

T2 Session: Science

- GP/phot-z demonstration
- Other potential modules

T3 Session: Interactions

- Foreseen T3 modules

Marshall, Purge, Jupyter interaction (external),
Ranking, Spectrum eval pull, TNS

- What is missing?
- Priority?

Lunch 13pm (Greek, 10 min walk)

Wednesday afternoon (2pm-)

ZTF science projects

Todo list

Work in smaller groups?

ZTF science potential

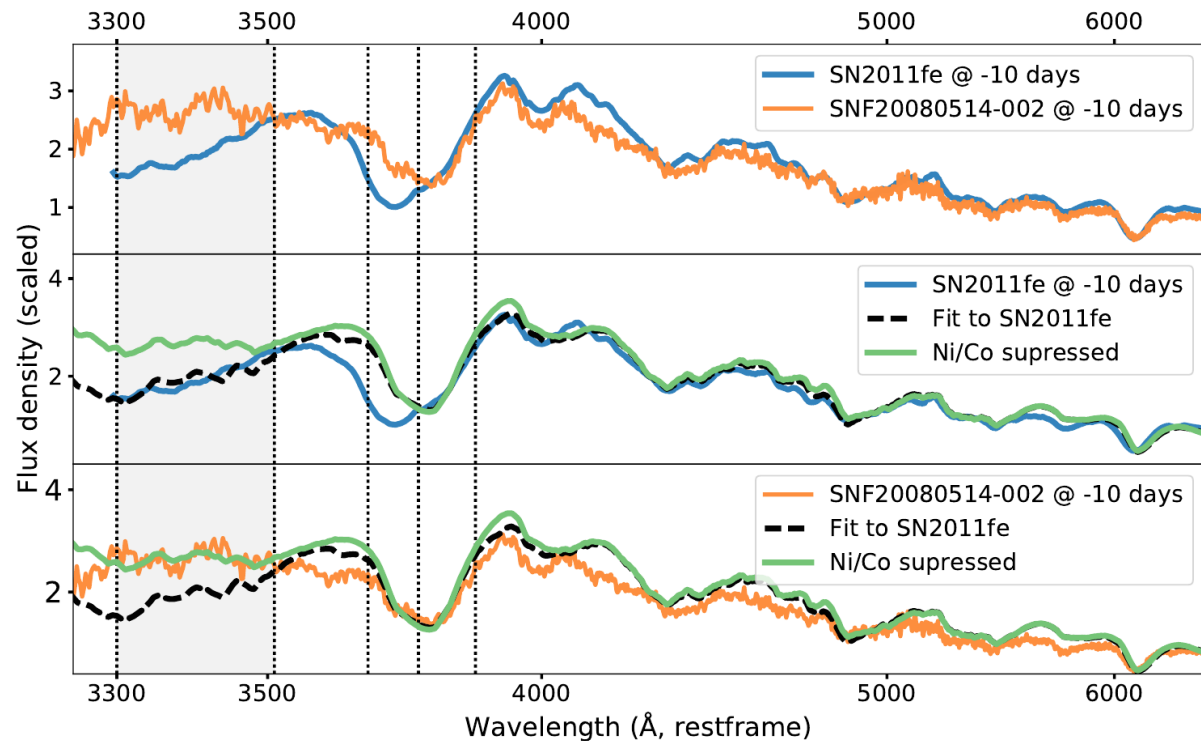
SN Ia progenitor,
explosion &
environment

IIP distances

Photometric
typing, census

Structure growth
constraints through
peculiar velocities

Strong lensing,
GW, v



ZTF science potential

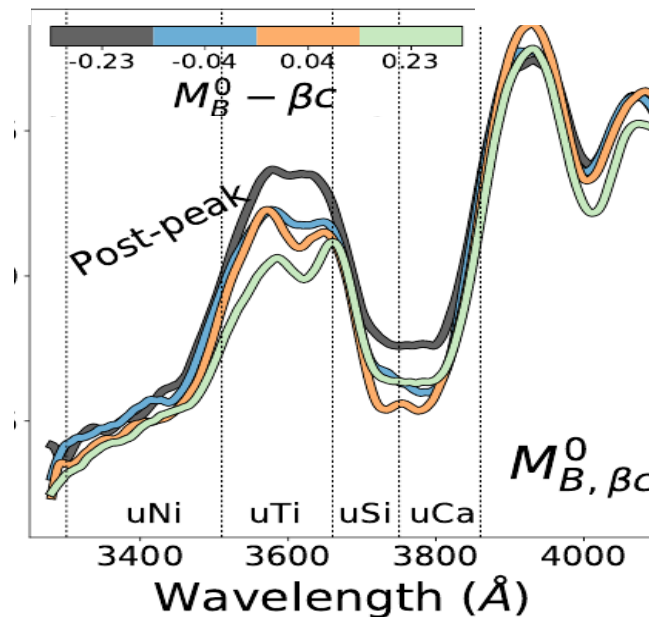
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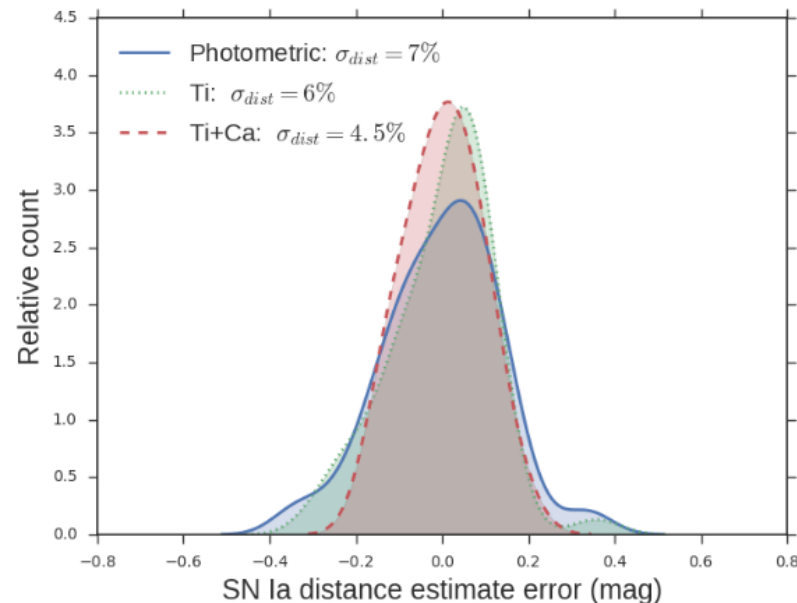
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ZTF science potential

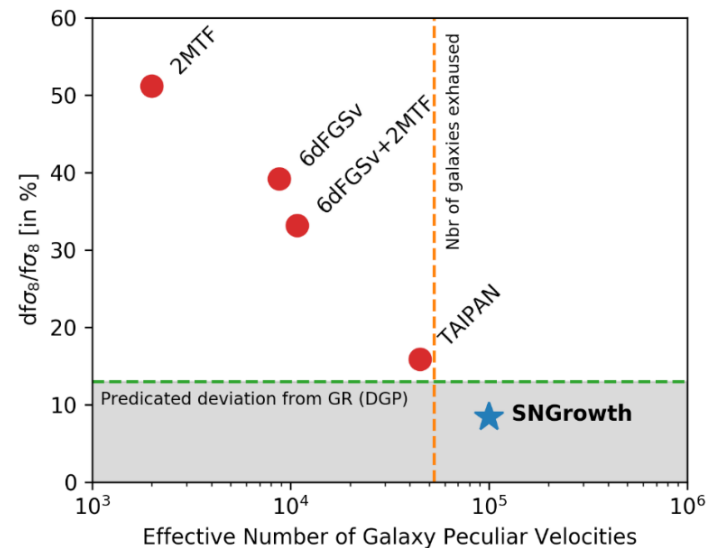
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How does ZTF work?

- Observations at the P48
- Preprocessing at IPAC
- Subtraction at IPAC
- Detection at IPAC
- Real / Bogus
- Candidates above threshold:
 - To 30day database
 - Detection information collected into “alert”
 - Including 1.5” search in 30day DB
- Distributed by UW as stream of (Kafka avro) alerts
- Displayable at the/a Marshal

$O(10^5)$ astrophysical transients/night + bogus



Why is this not sufficient?

- Not every observation yields alerts (not complete)
 - We might still lack access to public data
- Lack information (catalog matching, nuclear?, star?, photo-z?)
- No solution to shifting / selection
- Updating photometry either messy or impossible
- No guarantee that data that produced alerts can be retrieved
- Even hard to control selection function
 - Candidates (“alerts”) treated very different from “science” objects
 - Loses major potential advantage of ZTF
- Need to learn to work with large samples



Initial design goals

- Integrated updated, rerun calibration
- Allow analysis codes (eg lightcurve fitters) to run on candidates prior to scanning, or to fully remove this
- Create one framework that can be used for different science goals
- Make work on large samples feasible

Gradually added:

- As the IPAC/UW alert design was chosen, handling of these were included (alert broker/manager)
- Development in a docker container provided the potential for survey reruns



Four tiers

