

PESSTO target selection: the April run

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Cumulative scoring system

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Cumulative scoring system for classification

1) Nearby targets:

- $d \leq 40$ Mpc ($V_{\text{rec}} \leq 3000$ km/s) => +3
- $d \leq 25$ Mpc ($V_{\text{rec}} \leq 1800$ km/s) => +6

2) Young targets (at classification):

- $t_{\text{class}} - (t_{\text{disc}} + t_{\text{lim}})/2 \leq 4$ => +4
- $t_{\text{class}} - (t_{\text{disc}} + t_{\text{lim}})/2 \leq 7$ => +2
- $t_{\text{class}} - (t_{\text{disc}} + t_{\text{lim}})/2 \leq 10$ => +1

3) Young targets (at discovery):

- $t_{\text{disc}} - t_{\text{lim}} \leq 2$ => +2
- $t_{\text{disc}} - t_{\text{lim}} \leq 5$ => +1

4) "Hostless"

- No apparent host galaxy in the discovery image (or fainter than $M(B) > -18$) => +4

5) Remote location on E/SO & halos of spirals:

- $r \geq 15$ kpc => +2
- $r \geq 25$ kpc => +4

⋮

First PESSTO run – general statistics

Statistics of the first run (6n):

- 88 objects targeted
- 65 spectroscopically confirmed SNe:
50 Ia (one 91bg- and seven 91T-like),
8 IIP/L, 4 IIn, 2 Ic and 1 Ibn
- 13 candidates not visible in acquisition
- 7 spectra showed a galaxy, 2 variable stars



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survey	Ia	Ii	IIn	Ibc	galaxy	var.star	invis.	other
LSQ	37	3	3	3	5	2	7	1
CRTS	13	2	0	0	0	0	2	0
PS1	0	0	0	0	2	0	2	0
Master	0	1	0	0	0	0	2	0
other	0	2	1	0	0	0	0	0

First PESSTO run – follow-up targets

5 objects selected for follow-up:

- [MASTER 134201–023856](#): bright type II, $z = 0.13$.
Science PI: ??
- [PSN J18410706–4147374](#): bright type II_n,
07cy-like, $z = 0.013$.
Science PI: Inserra, Scalzo
- [LSQ12byu](#): very luminous type Ia, $z = 0.34$.
Science PI: Sullivan
- [LSQ12btw](#): 06jc-like Ib_n, $z = 0.057$.
Science PI: Pastorello
- [SNhunt121](#): classified in Benetti LP time,
peculiar, very faint Ic, $z = 0.007$.
Science PI: Valenti



First PESSTO run – does the scoring system work?



How does the pre-classification score relate to the classification result?

SN category	Number	Mean score	Sigma
'fully meet our science interest'	5	3.40	1.34
'of some interest'	11	2.36	2.06
'not really interesting'	49	2.16	2.34
'no SN (AGN, nothing visible)'	23	2.91	2.95

First PESSTO run – does the scoring system work?



In which disciplines did the objects gain their scores?

SN category	'Luminosity'	'Hostless'	'Faint host'	'Remote'
'fully meet our science interest'	3	1	0	0
'of some interest'	1	3	1	0
'not really interesting'	4	8	8	5
'no SN (AGN, nothing visible)'	6	5	4	3

PESSTO scoring system: room for improvement

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- Should have more weight, though information is often limited (noisy LCs, large cadence in CRTS).



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- Some tidying up may be necessary.



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Currently ~ 10 min per candidate needed to determine a score \rightarrow **automation is key!**

PESSTO observers at work

