

## Science groups in PESSTO (v1.14)

*November 2015*

These are the science groups within PESSTO, based both on the science bids that were received, and on the discussions at the February 2012 collaboration meeting in Garching.

Under each title are the names of people who wrote proposals in that direct area. [] indicates a secondary interest based on the proposals. Bold indicates the steward or coordinator of each science area. In some cases the science coordinator will rotate through the science group every year or so. The science coordinator's role is to:

- To decide, in conjunction with a paper's lead author, the authorship for papers originating from a given science group (following the PESSTO publication policy),
- To ensure that the PESSTO wiki is kept up-to-date with projects/papers being worked on within a science group,
- To ensure that the PESSTO project is taking data adequate to meet the science needs of a given science group,
- To act as a point of contact for future requests for membership of a given science group.

Science groups will have first refusal data rights within their science areas, i.e., they will be allowed to work on the PESSTO data exclusively without internal competition. They will control and decide the leadership (e.g., lead authorship of papers) of projects, subject to the PESSTO publication policy. It is expected that, usually, leadership for projects would be found from within the PESSTO collaboration, rather than from external (non-PESSTO) scientists.

This document does not record full membership of the various science groups other than the interests that were registered in the replies to the initial call. Requests for membership should be directed to the relevant science group coordinator.

“Statistical analysis of PESSTO classifications”

**Cappellaro** (Padova)

Type Ib/c, IIb SNe – normal, broad-lined and GRB-related events

**Mazzali** (LJMU)

Bufano (MCSS)

Valenti (Padova)

This would exclude the over-luminous “Quimby-like” SNe Ic and very faint events (gap transients, faint-and-fast, etc.)

“Over-luminous SNe Ic”

**Smartt** (QUB)

Yaron (Weizmann) (PI SNe only)

[ Sollerman (Stockholm) ]

[ Sullivan (Southampton) ]

Includes PI SNe and 05ap/Quimby-like events

“Supernovae with identified progenitors”

**Maund** (QUB)

[ Sollerman (Stockholm) ]

“Super-Chandrasekhar SNe Ia”

**Scalzo** (ANU)

[ Baltay (Yale) ]

“Optical Spectropolarimetry of PESSTO bright targets”

**Patat** (ESO)

“Extincted / reddened SNe”

Elias-Rosa (IEEC-CSIC) [NOTE: rotating science coordinator]

(extinction/reddening law for all SNe)

**Mattila** (Turku)

(CC SNe only; missing SNe, AO IR searches, SNe with significant CSM)

[ Bongard (LPNHE) ] (colour/dust studies of normal SNe Ia)

[ Nugent/Sullivan ] DES SNe Ia with NIR light curves

“Normal SNe Ia”

**Sullivan** (Southampton) – early-time spectra

Baltay (Yale) – cosmological applications

Bongard (LPHNE) – spectral modelling mostly with non-PESSTO data

[ Maguire (ESO) ] – low-luminosity hosts, remote locations

Nugent (LBNL) – DES SNe with NIR follow-up

Stritzinger (Aarhus) – wants to follow selected SNe Ia

SN Ia events with  $M_B < -18$ , not 91bg-like spectra, and not super-Chandra.

“Remote thermonuclear SNe Ia”

**Maguire** (ESO)

[ Taubenberger (MPA) ]

The emphasis is on building a statistical sample rather than individual events. Includes all SNe Ia in remote locations, including faint-and-fast, normal SNe Ia in low-metallicity hosts, etc..

“Sub-luminous SNe Ia 91bg-like”

**Gonzalez-Gaitan (MCSS)**

[ Taubenberger (MPA) ]

[ Maguire (ESO) ]

This would cover “normal” 91bg-like events; events with 91bg-like spectra,  $-18 < M_B < -16$  at peak.

“Faint, (fast) and non-interacting”

**Taubenberger** (MPA) (NOTE: rotating science coordinator)

Yuan (ANU)

Valenti (Padova)

[ Maguire (ESO) ]

[ Sullivan (Southampton) ]

Thermonuclear events with  $M_B > -16$ , including Ca-rich SNe (CC or thermonuclear), 08ha-like, 05E-like

Includes studies of individual events.

Excludes Weak IIPs, faint II[b]n

“Weak IIP”

**Turatto** (Padova)

Sollerman (Stockholm)

Faint core-collapse SNe from massive stars; fall-back SNe.

“The extremes of interacting core collapse supernovae”

**Kotak** (QUB) (NOTE: rotating science coordinator?)

Takats (MCSS)

Benetti (Padova)

[Mattila(Turku)]

In particular:

- $> -15$  – faint, interacting gap transients or supernova imposters with signatures of interaction (H or He), e.g. SN II[b]n
- SNe Ibn
- $\sim -20$  – ultra-luminous IIn

“Detailed Studies of Kepler Supernovae”

**Sullivan** (Southampton)

Detailed spectral time series of 2-3 supernovae with very high-density Kepler light curves. PESSTO will provide supporting data for the Kepler team. Overlaps with other PESSTO science groups will be dealt with on a case-by-case basis.

"Type II supernovae in low metallicity hosts"

**Anderson** (ESO)

SNII as metallicity probes using spectral models: as progenitor metallicity decreases, the strength of metal lines at certain epochs/colours will also decrease. Few SNII have been observed and followed at sub-SMC metallicities. Aim to build a group of SNe II that have occurred in low metallicity environments with spectral series. The aim would be to continue this project for ~1 year, in order to obtain a sample of low host luminosity SNII which will then be analysed together.

"Nuclear supernovae"

**Mattila** (Turku),

**Wyrzykowski** (Warsaw)

Spectroscopic types for transients in centres of galaxies. Interesting transients may be fed into other science groups.

"SN Ia nebular phase spectra"

**Maguire** (ESO)

**Sullivan** (Southampton)

Time-series spectra for 10 SNe Ia that will then be followed into the nebular phase using other facilities next year.

"PESSTO radio follow-up"

**Horesh** (Caltech)

Triggered radio follow-up of selected PESSTO targets, providing contributions to other PESSTO science groups and occasionally single paper studies.

"Environmental studies of supernovae"

**Galbany** (MAS)

Multi-epoch spectroscopy of a few SNe per year out to  $z=0.03$  to study correlations between SNe and their environments. (Where targets may be of interest to other science groups, those groups have first refusal to initiate follow-up.)

"Tidal Disruption Events"

**Arcavi** (LCOGT)

Study of events consistent with being TDEs. Initial target selection is blue, luminous transients in the centres of non-active galaxies.

"Early spectroscopy of SNe II"

**Inserra** (QUB)

Targets will be SNe II with absolute magnitude  $-13 \leq M \leq -16$ , very recent non-detections and hosted in galaxies with known redshift. (Where targets may be of interest to other science groups, those groups have first refusal to initiate follow-up.)

"SNII Cosmology"

**Clocchiatti** (MAS)

SNI Cosmology. Low-redshift SNe IIP with  $R < 19$  and well-constrained explosion epochs. 6-7 spectra per object.