### - PROJECT FOR ZTF -

### THE SOFTWARE STRUCTURE

### THE IDEA - NOT AN ACTUAL CODE

BUT A FRAMEWORK, I.E. A BUNCH OF OBJECTS AND TOOLS

WHAT

A Framework, i.e., a bunch of objects and tools

WHY

Well defined objects and structures enable to do fast, consistent, and scalable analyses

WHEN

Now, while the data are not there yet, is the moment to build this framework and agree on what is what and what goes where and what do we need?

How

Using well thought object definition and a lot of existing tools (sncosmo / sep)

**WHERE** 

On the git. So far in my github page for development, There is a ZTF github page made.

## AN OBJECT EXAMPLE THE ASTROTARGET

AstroTarget

Basic methods: load, save, ...

Properties:

Ra, Dec, Redshift, Name

Side Properties:

Cosmo, literature\_name, type, force MW extinction

Derived Properties:

Distance, arc/kpc, MWebmv

What is a transient ? « AstroTarget » + Time

AstroTarget

Supernova

Additional methods: lcfit, ...

Properties:

light-curve / time series

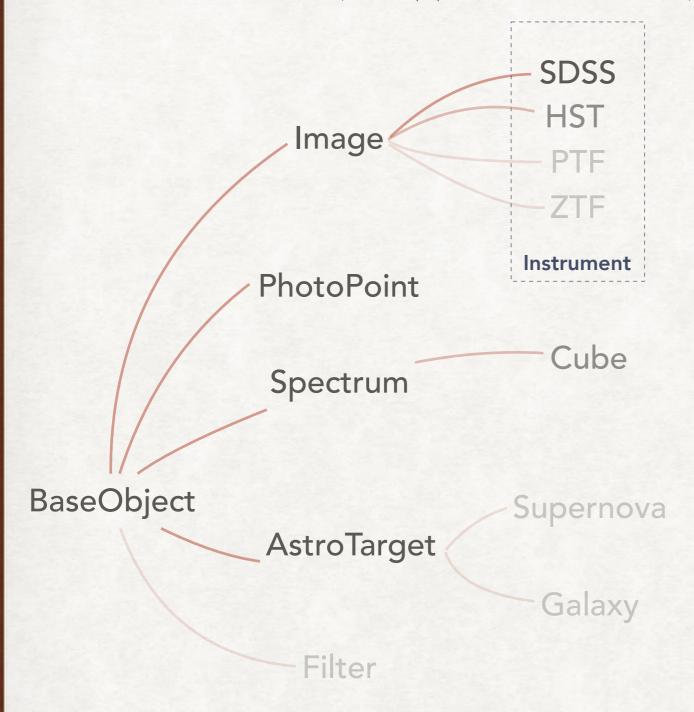
Side Properties:

experiment, host name, typing standardization technique

Derived Properties:

x1, stretch, atmax phase, mag...

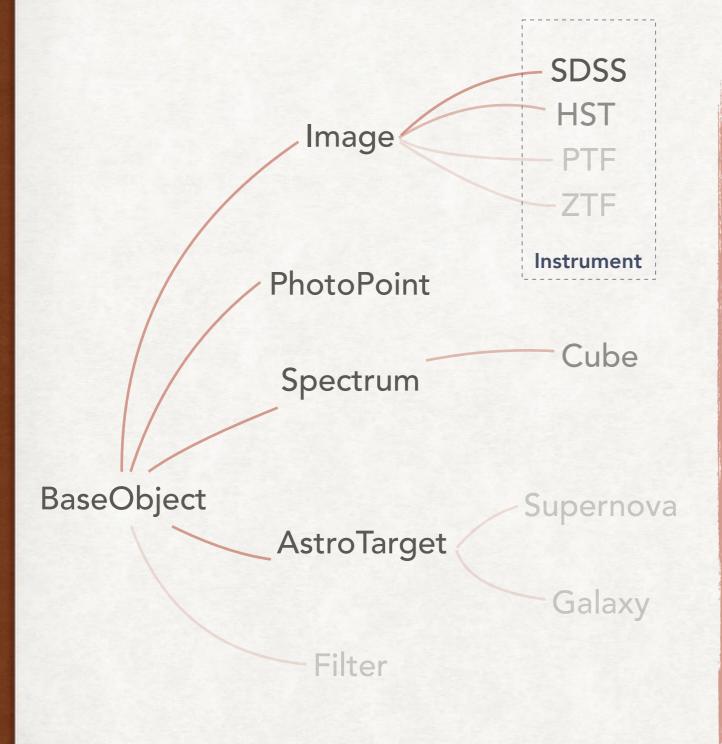
### FRAMEWORK I AM WORKING ON



Simulation

For instance « SimilatedSupenova » = « Supernova » + True-values

#### FRAMEWORK I AM WORKING ON



Simulation

What is a lightcurve:
Several PhotoPoint + Time

What is a TimeSerie: Several Spectrum + Time

How can I have a PhotoPoint?

Simulation / Instrument / Spectrum

How can I have a Redshift?
Simulation / SED-fitting / Spectrum

How can I build a SED ? (see multiband)
Several PhotoPoint + Model

How can get an Hubble Diagram?
Bunch of SNe Ia

# WHERE TO FIND MY CURRENT CODE SO FAR MY GITHUB BUT COULD BE MOVED TO ZTF'S

https://github.com/MickaelRigault/astrobject