

JetSeT: a C/Python framework for numerical modeling of acceleration/radiation processes in relativistic jets and SED fitting

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JetSeT is an open source Python framework with a C numerical engine, to reproduce radiative and accelerative processes acting in relativistic jets, allowing to fit the numerical models to observed data(<https://jetset.readthedocs.io/en/latest/> <https://github.com/andreatramacere/jetset>)

The main features of this framework are:

1. handling observed data (rebinning, definition of data sets, etc...)
2. definition of complex radiative scenario SSC/EC and IC against CMB
3. Constraining of the model in the pre-fitting stage, based on accurate and already published phenomenological trends. In particular, starting from phenomenological parameters, such as spectral indices, peak fluxes and frequencies, and spectral curvatures, that the code evaluates automatically, the pre-fitting algorithm is able to provide a good starting model, following the phenomenological trends that I have implemented.
4. possibility to add template models, such as galaxies, or Big Blu Bumps
5. fitting of multiwavelength SEDs using both frequentist approach (iminuit) and MCMC sampling (emcee)
6. reproduction of the temporal evolution of the plasma under the effect of radiative and accelerative processes, both first order and second order (stochastic acceleration) processes.

I will discuss the design and the status of the project, I will try to through all the items above, in particular item 3), that as far as I know, is missing in similar packages.

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