ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **1270** Type: **Poster contribution**

Naima: a Python package for inference of particle distribution properties from nonthermal spectra

Thursday, 30 July 2015 15:30 (1 hour)

The ultimate goal of the observation of nonthermal emission from astrophysical sources is to understand the underlying particle acceleration and evolution processes, and few tools are publicly available to infer the particle distribution properties from the observed photon spectra from X-ray to VHE gamma rays. Naima is an open source Python package that provides models for non-thermal radiative emission from homogeneous distribution of relativistic electrons and protons. Contributions from synchrotron, inverse Compton, nonthermal bremsstrahlung, and neutral-pion decay can be computed for a series of functional shapes of the particle energy distributions, with the possibility of using user-defined particle distribution functions. In addition, Naima provides a set of functions that allow to use these models to fit observed nonthermal spectra through an MCMC procedure, obtaining probability distribution functions for the particle distribution parameters. In this contribution I will present the models and methods available in Naima and an example of their application to the understanding of a galactic nonthermal source.

Collaboration

– not specified –

Registration number following ”ICRC2015-I/”

571

Primary author: ZABALZA, Victor (University of Leicester)

Presenter: ZABALZA, Victor (University of Leicester)

Session Classification: Poster 1 GA

Track Classification: GA-TH