

Dear Referee,

We are resubmitting our manuscript titled "The spectacular stellar explosion- GRB 130427A: synchrotron modeling in the wind and the ISM" which we have changed according to your suggestion, for publication as HEASA 2015 proceeding. We have considered all comments and suggestions by you and revised our manuscript accordingly.

We hope the manuscript is now suitable for publication.

Sincerely,

Jessymol K. Thomas, Reetanjali Moharana and Soebur Razzaque

Suggestion:

Abstract:

- ...to a spectacular GRB IS THE the most...
- ...GeV gamma rays LASTING for about 20hrs...
- ...with AN extremely...
- ...of THE Spectral Energy...
- ... light curves...
- ...both THE ISM and wind environments.
- Also, the modeling of THE temporal evolution of THE flux in different frequencies with the same model PARAMETERS IS done for LAT, XRT-BAT and UVOT/optical OBSERVATIONS OF GRB130427A.

Response:

We have changed the writing suggested by the Referee.

Suggestion:

Introduction:

- fronts of the jets reach...
- "This spectacular explosion..." the 'This' is ambiguous since nothing has been referred to yet.
- "3.6 billion years away" Should this be light years away?
- "LAT, the Large Area Telescope" rather change to "The Large Area Telescope (LAT)"
- "...optical telescopes like Liverpool Telescope, akeno

observatory, Faulkes Telescope, Okayamma Telescopes and Ishigakijima observatory [3]."

The statement is about telescopes but then includes observatories. Rather refer to the telescope network which was used.

Response:

Changes has been done according to the suggestion and we have included the name of the telescopes.

Suggestion:

2. Synchrotron Modeling...

- "...after THE explosion..."
- "...bright afterglows in the range of X-rays, optical and Infra-red wavebands." -> " ..bright afterglow in the X-ray, optical and infra-red wavebands.- "...in both THE wind environment..."

Response:

Changes has been made.

Suggestion:

Tables:

- In tables 1, 2 & 3 the energy band of the detection should be given.
- In tables 1 & 2, the value and the error are given to a large number of decimal places. It doesn't really make sense to give the flux value to so many decimal places if it already so far in the uncertainty.
- Table 3. The filters are given instead of the flux error.
- Table 5 should state which telescope is used.

Response:

We have now corrected the mistakes.

Suggestion:

This section is very unclear and there a number of issues/concepts that should be clarified:

1. The different break frequencies referred to aren't explained.
2. How the light curves are calculated is unclear.
3. The first paragraph on page 4 is very unclear.
4. Equation 2.6 is not given in the same form as in reference [4]. In that reference the ν_{a} term isn't there, the last term doesn't include an exponential cutoff, the last frequency should be

$\nu_c < \nu$

not $\nu_c < \nu_s$, and $F_\nu \propto F_{\nu, \max}$...

In addition:

- "the temporal evolution of flux versus frequency spectrum [...] in [THE] case of [THE] blast wave.
- for equations 2.1-2.5 the units should not be in italic.
- the self absorption frequency (equation 2.3) is not mentioned/defined in the text.
- HERE, E_{55} ...
- in units of 10^{55} erg,
- field $\phi_1 = \phi / 10$, AND A^*
- in THE wind OF the progenitor...
- It would be helpful for a general reader if T_{90} is defined
- Fig.2 Light curve...
- Fig 4. This is for optical/uv data not LAT data.
- ... $z = 0.34$, dL_{28} ... missing comma

Response:

We have implemented the suggestions and have tried to explain all the parameters.

Section 2.2

- Second line, the acronym ISM is already defined, and can be used.
- A reference should be given for the equations
- The units should not be in italic
- n_0 in equation 2.11 is not defined.
- Fig. 5 (missing space).
- $z = 0.34$, $dL_{28} = 0.56$, (there is a random and)
- Fig. 6, (missing space)

Response:

Corrections has been done as suggested.

Suggestion:

Section 3.

The conclusion can be slightly expanded to include what conclusion can be drawn from the ISM modelling.

Response:

We have extended the conclusion now.

Suggestion:

Reference:

[3]page number is 48

[4]the year is 2004

[5]the are missing spaces

[7]the year is 1999

Response:

Changes has been done.