

Review Form 1.6

Journal Name:	International Astronomy and Astrophysics Research Journal
Manuscript Number:	Ms_IAARJ_82389
Title of the Manuscript:	A Comprehensive Analysis of Fermi Gamma-Ray Burst Data with thermal and non-thermal component
Type of the Article	

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Compulsory REVISION comments</p>	<p>This study itself is interesting. However, the current version still has many problems. I would like to suggest the authors to improve the presentation.</p> <p>(1) In the Abstract, the authors wrote that they study 20 GRBs. But the number of GRBs is different in various sections. In the 1st paragraph of Section 2, it says "There are 67 bursts meet the criteria.", but did not describe how it finally reduces to 20 GRBs. Then in Table 1 on Page 3, note that 21 GRBs are listed, but not "20" GRBs. Then in Table 5 on Page 17, there are 21 GRBs again.</p> <p>(2) In Table 4, the title says "Time-resolved spectrum fitting results for 20 bursts", but there are only 4 GRBs listed in the table. Please check it.</p> <p>(3) Page 1, 1st paragraph of Section 1, when discussing the triggering mechanisms of GRBs, the authors mentioned collapses of massive stars for long GRBs and mergers of binary compact stars for short GRBs. While these two mechanisms are truly widely accepted in the field of GRBs, it should also be noted that the possibility that a small portion of GRBs might be produced by other mechanisms still could not be expelled. For example, some special GRBs and bursting phenomena might also be produced by strange quark stars (Dai Z.G., Lu T., Gamma-Ray Bursts and Afterglows from Rotating Strange Stars and Neutron Stars, PRL, 1998, 81, 4301; Geng J., et al., Repeating fast radio bursts from collapses of the crust of a strange star, The Innovation, 2021, 2, 100152 (arXiv: 2103.04165)). The authors are suggested to mention these possible mechanisms for a more complete background for readers.</p> <p>(4) Usually, in the GRB field, the name of GRB is given by 6 digitals. However, in this manuscript, the GRB names included 9 digitals, such as: 100724029, 120129580, Please explain why, otherwise it is better to use normal 6 digitals.</p> <p>(5) Page 4, in Table 2, the unit of F_p is "keV s-1 cm-2". Here "keV" maybe should be "erg". Please also check the unit of F_p in many Figures and Tables, such as Figures 5, Fig 6, Table 4,</p> <p>(6) Page 8, Figure 1, in the caption, the authors wrote "Left panels: Band models. Right panels: Band+BB models." But actually, the panels are not organized according to this rule. Please check.</p> <p>(7) Page 9, Figure 2, since only 4 GRBs are plotted in this figure, the authors should give the reason why they are chosen to be plotted. For example, maybe these 4 GRBs are typical examples. Similarly, the GRBs plotted in Figures 3, 4, 5, 6, 8 should also be explained.</p> <p>(8) Page 9, Figure 3, the names of the two GRBs in this figure should be given.</p> <p>(9) Page 10, Figure 5, please make sure that the unit of F_p is correct on the Y axis.</p> <p>(10) Page 11, Figure 6, in the caption, the author only mentioned "red squares", but in the middle panel, the squares is blue; The caption also mentioned down panel, but actually no down panel here. Also please note the unit of F_p on the Y axis.</p> <p>(11) Page 17, Figure 8, the name of the 8 GRBs should be given.</p> <p>(12) Page 17, Table 5, for the parameter r (linear correlation coefficient), why two GRBs have minus values, please explain; Also the parameter of P is defined as confidence level here in the caption of the table, but it actually should be the chance probability. Please check all the definition of r.</p>	
<p>Minor REVISION comments</p>	<p>(1) The English presentation need to be significantly improved. There are many grammar problems. Here I could only list some problems. The authors are suggested to carefully check through the whole manuscript by themselves. Some problems: (i) In the Abstract, "The thermal component decrease the low-energy index", decrease → decreases; "there are a little bursts satisfied with" → "there are a few bursts satisfying with"; (ii) Page 2, "the spectra is thermal (blackbody (BB)) at the beginning and later become non-thermal", become → becomes; (iii) "includes a significant thermal spectral contribution (Guiriec et al. 2011)."</p>	

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	<p>Includes → including; (iv) Page 16, “In a standard fireball model, that the spectra should be thermal, which is inconsistent with observations.”, this sentence is not correct; (v) “In our fitting results, there are only four bursts satisfied with the internal-shock synchrotron radiation”, satisfied → satisfying; “In the other hand” → “On the other hand”; “General speaking” → “Generally speaking”;</p> <p>(2) For the “CPL”, the authors say it is a power-law with an exponential cutoff. This is easy to understand. But at some places the authors also call it “Compton function”. It is suggested to remove the words of “Compton function” so that the readers will be more straightforward to understand.</p> <p>(3) Page 1, in Abstract, in “Results”, “Four GRBs can be fitted by the model, which shows that PL component appears in ...” Here, “the model” refers to what model? Please make it clear; “the Ep–Fp relation”, here Fp is not defined.</p> <p>(4) Page 1, Meszaeros & Rees 1993, Meszaeros → Meszaros</p> <p>(5) Page 2, “should be bright and sufficiently high signal-to-noise.” → “should be bright and have a sufficiently high ratio of signal-to-noise.”; also, many “photo” should be “photon”; “There are 67 bursts meet the criteria”, meet → meeting; “The data was fitted by Rmfit”, was → were; “the energy flux $F_v \geq 4 \times 10^{-5} \text{ erg s}^{-1} \text{ cm}^{-2}$ and the peak photon...”, please make sure whether the “s⁻¹” is necessary in the unit.</p> <p>(6) Page 6, “we should make sure the thermal component in the prompt emission spectra at first”, please add an “exists” after “component”; The same page, “two model” → “two models”; “some burst” → “some bursts”.</p> <p>(7) Acronyms should be defined when they appear first in the text, and they do not need to be defined repeatedly. For example, CPL and PL are repeatedly defined at many places. Please carefully check all through the text for all the Acronyms.</p> <p>(8) In this manuscript, I could find at least 3 strange Acronyms as ICMRT, ICMRAT, and ICMART. Which one is correct? Please carefully define it and correctly use it.</p> <p>(9) Page 20, in the text, the authors wrote that “redshift of GRB150403029” is known, but in the caption of Figure 9, the GRB name is written as GRB 150403913. These two numbers are different. Which one is correct? The same page, “The correlation between the isotropic luminosity L_{iso} and the peak energy $E_{p,z}$ in the rest frame when the time-resolved data is fitted with two different models. ”, note that this sentence is not correct. Please revise it.</p> <p>(10) Page 21, Reference item 1, the year of 1993 should be moved to behind the journal name of ApJ.</p> <p>(11) Page 22, Item 29, note that the author and title information are absent for this item.</p>	
<p>Optional/General comments</p>	<p>This manuscript needs a major revision, and I would like to read a revised version.</p>	

PART 2:

	Reviewer’s comment	Author’s comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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