Neutrinos via Charm Decays in Astrophysical Sources

by

Fritz Ali Agildere

fritz.agildere@udo.edu

Abstract

Abbreviations

Contents

1	Introduction	1
2	Background 2.1 Particle Physics 2.2 Multimessenger Astronomy 2.3 Astrophysical Sources	2 2 2 2
3	Results	3
4	Conclusion & Outlook	4
Ac	cknowledgements	5
Αp	ppendix	6
Bil	bliography	7

1 Introduction

αβγδηζξ χφφθθμνρ

```
first zeroth test.^{1-3}
second zeroth test.<sup>1,2</sup>
third zeroth \mathsf{test}^{1,3}
test.4
first test [1-3]
second test [1, 2]
third test [1, 3]
[5]
[4]
[6]
(2.998 \pm 0.001) \times 10^{10} \,\mathrm{cm\,s}^{-1}
\pm \times + - \cdot 6.626 \times 10^{-27} \text{ erg s}
4.803 \times 10^{-10} \text{ esu}
10^{14} \, \mathrm{G}
1.4 \times 10^0 \ 1.4 \times 10^0
                                                                   \sum\nolimits_{n=1}^{\infty}\frac{1}{n^2}=\frac{\pi^2}{6}
                                                                                                                                                          (1.1)
\sqrt{1-\beta^2}
```

2 Background

- 2.1 Particle Physics
- 2.2 Multimessenger Astronomy
- 2.3 Astrophysical Sources
- 2.3.1 Magnetars
- 2.3.2 Active Galactic Nuclei

3 Results

4 Conclusion & Outlook

Acknowledgements

Appendix

Bibliography

- 1. J. A. Carpio, K. Murase, M. H. Reno, I. Sarcevic, A. Stasto, *Physical Review D* **102**, ISSN: 2470-0029, DOI: 10.1103/PhysRevD.102.103001, arXiv: 2007.07945 [astro-ph.HE] (2020).
- 2. C. Alvarez, A. Carramiñana, *Astronomy & Astrophysics* **414**, 651–658, ISSN: 1432-0746, DOI: 10.1051/0004-6361:20031627, arXiv: astro-ph/0311267 (2004).
- 3. J. D. Jackson, *Classical Electrodynamics* (Wiley, New York, NY, Third Edition, 1999), ISBN: 9780471309321.
- 4. J. Li, A. Spitkovsky, A. Tchekhovskoy, *The Astrophysical Journal* **746**, 60, DOI: 10.1088/0004-637X/746/1/60, arXiv: 1107.0979 [astro-ph.HE] (2012).
- 5. C. Thompson, R. C. Duncan, *The Astrophysical Journal* **408**, 194, DOI: 10.1086/172580 (1993).
- 6. B. Haskell, A. Sedrakian, in *Astrophysics and Space Science Library* (Springer International Publishing, 2018), Chapter 8, 401–454, ISBN: 9783319976167, ISSN: 2214-7985, arXiv: 1709. 10340 [astro-ph.HE].

Figures

Tables