IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, March 2022
Impact Factor: 6.252

Anisotropic Plane Symmetric Inflationary Universe with Massless Scalar Field

G. U. Khapekar and Pallavi Dakare
Department of Mathematics
Jagadamba Mahavidyalaya, Achalpur, Amravati, Maharashtra, India
ganeshkhapekar777@gmail.com

Abstract: *A Plane symmetric homogeneous space-time in the presence of mass less scalar field with a flat potential is investigated. To get an inflationary universe, we have considered a flat region in which potential V is constant. It is assumed that scale factor is* $a(t) = e^{Ht}$ *where H is the Hubble constant. Some physical and kinematical properties of the model are also discussed.*

Keywords: Plane symmetry, Inflationary cosmological model, scalar field etc.

REFERENCES

[1]. A. H. Guth, Physical Review D, Vol.23, no.2, pp. 347-356 (1981)
[2]. A. D. Linde, Phys. Lett. B, 108, 389 (1982)
[3]. A. Abrecht and P.J.Steinhardt, Phys. Rev. Lett., 48, 1220 (1982)
[4]. A. B. Burd and J. D. Barrow, Nucl. Phys. B, 308, 923 (1988)
[5]. R. Wald, Phys. Rev. D, 28, 2118 (1983)
[6]. J. D. Barrow, Phys. Lett. B, 187, 12 (1987)
[7]. J. A. Stein-Schabes, Phys. Rev. D, 35, 2345 (1987)
[8]. G. F. R. Ellis and M. S. Madsen, Class. Quant. Grav. 8, 667 (1991)
[9]. M. Heusler, Phys. Lett. B, 253, 33 (1991)
[10]. R. Bhattacharjee and K. K. Baruah, Indian J. Pure Appl. Math, 32, 47, (2001)
[11]. R. Bali and V. C. Jain, Pramana J. Phys. 59, 1 (2002)
[12]. F. Rahaman, G. Bag, B. C. Bhui and S. Das, Fizika B, 12, 193, (2003)
[13]. D. R. K. Reddy, R. L. Naidu and S. Atchuta Rao, Int. J. Theor. Phys. 47, 1016 (2008)
[14]. D. R. K. Reddy, R. L. Naidu, Int. J. Theor. Phys. 47, 2339 (2008)
[15]. D. R. K. Reddy, R. L. Naidu and S. Atchuta Rao, Astrophys.Space Sci. 319, 89 (2008)
[16]. D. R. K. Reddy, Int. J. Theor. Phys. 48, 2036 (2009)
[17]. D. R. K. Reddy, K. S. Adhav, S. D. Katore and K. S. Wankhade, Int. J. Theor. Phys. 48, 2884 (2009)
[18]. S. D. Katore and R. S. Rane, Astrophys. Space Sci. 323, 293 (2009)
[19]. R. Bali and Poonia Laxmi, ISRN Astronomy and Astrophysics, (2011)
[20]. R. Bali and swati, Chin. Phys. Lett. 29, No.8 (2012)
[21]. K. S. Adhav, Prespacetime Journal, 2, Issue 11, 1828 (2011)
[22]. S. D. Katore, K. S. Adhav, V. G. Mete and A. Y. Shaikh, Pramana J. Phys. 78, No.1, 101 (2012)
[23]. S. D. Katore, A. Y. Shaikh and K. S. Wankhade, The African Review of Phys. 10:002 (2015)
[24]. D. A. Kirzhnitz and A. D. Linde, Annals of Physics, 101, No.1, 195 (1976)
[25]. T. Rothman and G. F. R. Ellis, Phys. Lett. B, 180, Nos.1-2, 19 (1986)
[26]. Ya. B. Zel'dovich and M. Yu. Khlopov, Phys. Lett. B 78, 239 (1978)
[27]. D. A. Kirzhnitz and A. D. Linde, JETP Lett. 15, 529 (1977)