

Knutsen, Henning

On the instability of an isentropic model for a gaseous relativistic star. (English)

Zbl 0636.76135

Gen. Relativ. Gravitation 20, No. 4, 317-325 (1988).

It is shown that the isentropic perfect fluid subclass of *H. Buchdahl's* exact solution for a gaseous relativistic star [Seventeen simple lectures on general relativity theory (1981; Zbl 0561.53063)] is unstable.

MSC:

76Y05 Quantum hydrodynamics and relativistic hydrodynamics
83F05 Cosmology
85A05 Galactic and stellar dynamics
83C55 Macroscopic interaction of the gravitational field with matter (hydrodynamics, etc.)

Cited in 4 Documents

Keywords:

isentropic perfect fluid; exact solution; gaseous relativistic star

Full Text: DOI

References:

- [1] Kramer, D., Stephani, H., MacCallum, M. A., and Herlt, E. (1980). Exact Solutions of Einstein's Field Equations (Deutsche Verlag der Wissenschaften, Berlin/Cambridge University Press, Cambridge). · Zbl 0449.53018
- [2] Buchdahl, H. A. (1967). Astrophys. J., 147, 310. · doi:10.1086/149001
- [3] Buchdahl, H. A. (1981). Seventeen Simple Lectures on General Relativity Theory (Wiley, New York). · Zbl 0561.53063
- [4] Schutz, B. F. (1985). A First Course in General Relativity (Cambridge University Press, Cambridge). · Zbl 1173.53002
- [5] Buchdahl, H. A. (1959). Phys. Rev., 116, 1027. · Zbl 0092.20802 · doi:10.1103/PhysRev.116.1027
- [6] Chandrasekhar, S. (1964). Phys. Rev. Lett., 12, 114, 437. · Zbl 0116.21704 · doi:10.1103/PhysRevLett.12.114
- [7] Chandrasekhar, S. (1964). Astrophys. J., 140, 417. · Zbl 0151.47102 · doi:10.1086/147938
- [8] Bardeen, J., Thorne, K. S., and Meltzer, D. W. (1966). Astrophys. J., 145, 505. · doi:10.1086/148791

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.