

GRAVİTASYON ALANLARININ HAMILTONYANI

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Özet: Bu çalışmada, gravitasyonel vektör alanlarının integral eğrilerinin geodezik eğriler olduğu matematiksel method kullanılarak ispatlandı ve gravitasyonel alanların Hamiltonyanının metrik tensörü kullanılarak Hamilton uzayının kotanjant demetinin diferensiyel geometrisi üzerine çalışıldı.

THE HAMILTONIAN OF GRAVITATIONAL FIELD

Abstract: In this paper, it is proved that the integral curves of gravitational vector field are geodesics by using mathematical method and it is studied the differential geometry of the cotangent bundle the Hamilton space by using the metric tensor of the Hamiltonian of gravitational fields.

REFERENCES

- [1] Abraham R., Marsden J. E., Foundations of mechanics, W. A. Benjamin Inc., New York, 1967.
- [2] Akbulut S., Özdemir M., Salimov A. A., Diagonal lift in the cotangent bundle and its applications, *Türk J. Math.*, 25, 491-502, 2001.
- [3] Arnold V. I., Mathematical methods of Classical mechanics, Springer-Verlag, Berlin, 1989.
- [4] Miron R., The geometry of higher-order Hamilton spaces Applications to Hamiltonian mechanics., Kluwer Academic Publishers, Dordrecht, 2003.
- [5] Oproiu V., A pseudo-Riemannian structure in Lagrange geometry, *An. Stiint. Univ. Al. I. Cuza Iasi, N. Ser., Sect. Ia* 33, 239-254, 1987.
- [6] Oproiu V., Papaghiuc N., A pseudo-Riemannian structure on the cotangent bundle, *An. Stiint. Univ. Al. I. Cuza Iasi, Ser. Noua, Mat.* 36, No. 3, 265-276, 1990.
- [7] Willmore T., Riemann extensions and affine differential geometry, *Result. Math.*, 13, No. 3/4, 403-408, 1988.
- [8] Yano K., Ishihara S., Tangent and Cotangent Bundles, Marcel Decker, Inc., New York, 1973.