

Orbital motion

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Abstract

The principles of orbital motion have been misunderstood by scientists. This paper clears up the misconceptions. It is the magnitude of the component of momentum perpendicular to the radius that is conserved.

Introduction

Having spent many hours working on a fringe project, it became apparent that certain principles of physics did not match the reality of experimental prototypes. This paper is the exposé of my findings.

Axiom 1

Centripetal force and perpendicular momentum are the defining factors of orbital motion.

Axiom 2

Centripetal force and centrifugal force determine the radius by means of homeostasis.

Hypothesis

The magnitude of the perpendicular momentum is conserved.

Proof

Premise 1

There can be no component of centripetal force perpendicular to the radius.

Premise 2

In order to affect the magnitude of the component of momentum perpendicular to the radius, one must apply a parallel component of force (Newton's first law).

Conclusion:

By deduction, the magnitude of the component of momentum perpendicular to the radius must remain conserved.

References

1) D. Halliday & R. Resnick, Fundamentals of Physics, second edition, extended version (John Wiley & Sons, Inc., New York, 1981) p 167-204.