A Note on Closed Timelike Curves

J. de Curtò and I. de Zarzà.
Iris Lunar Rover. BRAIN Team. ETH Zürich. Carnegie Mellon.

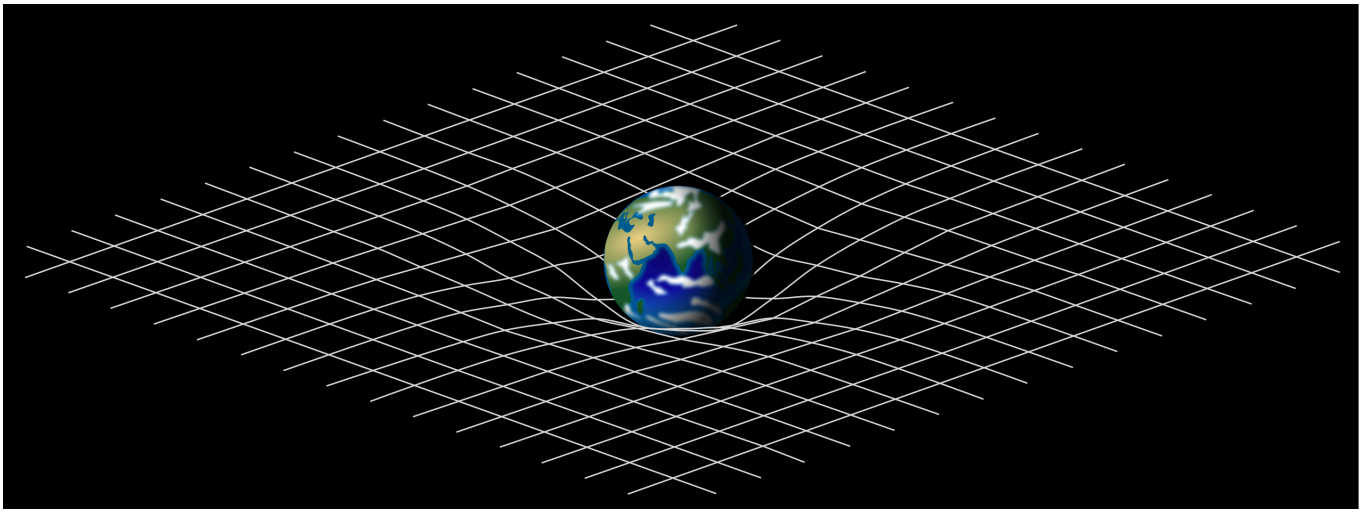

Figure 1. Space-time curvature.

We introduce a new interpretation of Closed Timelike Curves.

CCS Concepts: • **Physics** → **CTC**.

Additional Key Words and Phrases: General Relativity, Closed Timelike Curves.

1 Introduction

Our aim is to present a novel interpretation of Closed Timelike Curves as solutions of the EINSTEIN field equation.

2 Time-traveling

As stated in reference [Gödel 1949], the existence of closed timelike lines makes theoretically possible in these worlds to travel into the past, or otherwise influence the past. Our contribution lies in the interpretation of these solutions.

We claim that these CTC solutions are indeed the ones that govern space time for humans and animated objects in general. What this means is that our actions in the future, can actually affect our past actions. In some sense, all our human existence is based on these interactions between present and past. Not only these solutions are not pathological, but instead describe our day-to-day.

References

K. Gödel. 1949. An Example of a New Type of Cosmological Solutions of Einstein's Field Equations of Gravitation. *Reviews of Modern Physics. 21, 447.* (1949).

{curto,zarza}@vision.ee.ethz.ch.