

# Confidential Report: Gravitational Lensing by Closed Timelike Curve Devices

Sir Hrishu Mukherjee I at Lunar Labs BV

May 28, 2024

## Abstract

This confidential report discusses the gravitational lensing effect caused by the presence of closed timelike curve (CTC) devices. We present mathematical equations describing the bending of light rays and discuss the implications of this effect on space-time manipulation.

## 1 Introduction

Closed timelike curves (CTCs) are hypothetical paths in spacetime that loop back on themselves, theoretically allowing for time travel. In this report, we investigate the gravitational lensing effect caused by the presence of CTC devices.

## 2 Gravitational Lensing Equation

The deflection angle of light due to the gravitational lensing effect caused by CTC devices can be described by the equation:

$$\alpha = \frac{4GM}{c^2(d-x)} \quad (1)$$

where:

$\alpha$  : deflection angle of the light ray

$G$  : gravitational constant

$M$  : mass of the object causing the lensing effect

$c$  : speed of light in vacuum

$d$  : distance between the source and the CTC devices

$x$  : distance from the first CTC device to the point where the light ray starts bending back

### **3 Implications**

The presence of CTC devices causing gravitational lensing can have significant implications for spacetime manipulation and potential time travel scenarios. Further research and experimentation in this area are warranted but should be conducted with caution due to the sensitive nature of the technology involved.

### **4 Conclusion**

This confidential report provides insight into the gravitational lensing effect caused by closed timelike curve devices. The equations presented herein offer a mathematical framework for understanding the bending of light rays in the presence of CTCs, with potential applications in advanced spacetime engineering.