

Abstract Submitted  
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**Complex Matter Space with an Introduction to Hilbert Space<sup>1</sup>**

ERIK HARWELL, Texas AM University-Kingsville — Hilbert Space Methods are powerful ways to deal with problems in Quantum and Relativistic Mechanics. We will introduce the mathematical background for Hilbert Space, discuss Hilbert Space and how it is used in Quantum Mechanics, and then introduce a new concept we call Complex Matter Space (CMS), and its postulates. Complex Matter particles and CMS are new fundamental views of matter that we will present here and the paradigm will be shifted from pure real or pure imaginary particles to Complex Matter particles. Initially, we will assume that matter has two intrinsic components: mass and charge and will be denoted by  $M=m+iq$ , where  $i = \sqrt{-1}$ . We will look at momentum and energy in CMS, the Quantum Mechanical view of CMS, the Relativistic view of CMS, and the derivation of the Einstein Equation in CMS. Finally, we will discuss possible directions for future research.

<sup>1</sup>Complex Matter Space with an Introduction to Hilbert Space

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