Abstract

The Fourier Transform is a mathematical tool used in many scientific disciplines that converts an input of a temporal (time) signal to a set of frequencies, which can then be used for analysis. The main topic of discussion in which this project focuses on is threefold: we will utilize the Fourier Transform (F.T) to process signals containing noise, introduce a special class of mathematical equations known as partial differential equations (PDEs),and hone in on a PDE in the form of the Schrödinger Equation, which is a well-established law in the field of quantum mechanics. The classical mechanics analogue for the Schrödinger Equation is Newton's 2nd Law of Motion; both are known to be the cornerstones in their respective branches of physics and aim to mathematically describe the motion of different objects/systems. Hence, their significance is the motivation for this research.