PINNs - Damped Harmonic Oscillator

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Abstract

Short abstract.

1 Introduction

The one-dimensional damped harmonic oscillator is described by the following PDE

$$\ddot{x} + \gamma\dot{x} + \kappa x = 0, \tag{1}$$

where κ is the spring constant and γ is a dampening coefficient.

A Runge-Kutta 4

Considering the PDE in equation **??** the Runge-Kutta 4 (RK4) method follows the framework

$$\dot{x} = \dot{v} \tag{2}$$

$$\dot{v} = -\gamma\dot{x} - \kappa x \tag{3}$$

References