Dust Particle

Krishna

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1 Equation of the trajectory of the dust particle

As described in the problem statement, the equation of the trajectory of the dust particle, in the parametric form, can be described as

$$x(t) = a * t * cos(wt), y(t) = a * t * sin(wt), z(t) = v * t$$

where a and w and v are constants

2 Implementation

I have chosen SageMath as my compiler of choice as I am comfortable with it and it allows for the ease of performing the following tasks:

1. Plotting 3-D graphs and support for viewers such as threejs and tachyon
2. Saving images recursively

The ipynb file and the code.pdf file contains the code while the gif has been made by importing the output images into gimp as layers and exporting the result as a .gif file.

A simple case has been taken here, where a,v and w are equal to 1.

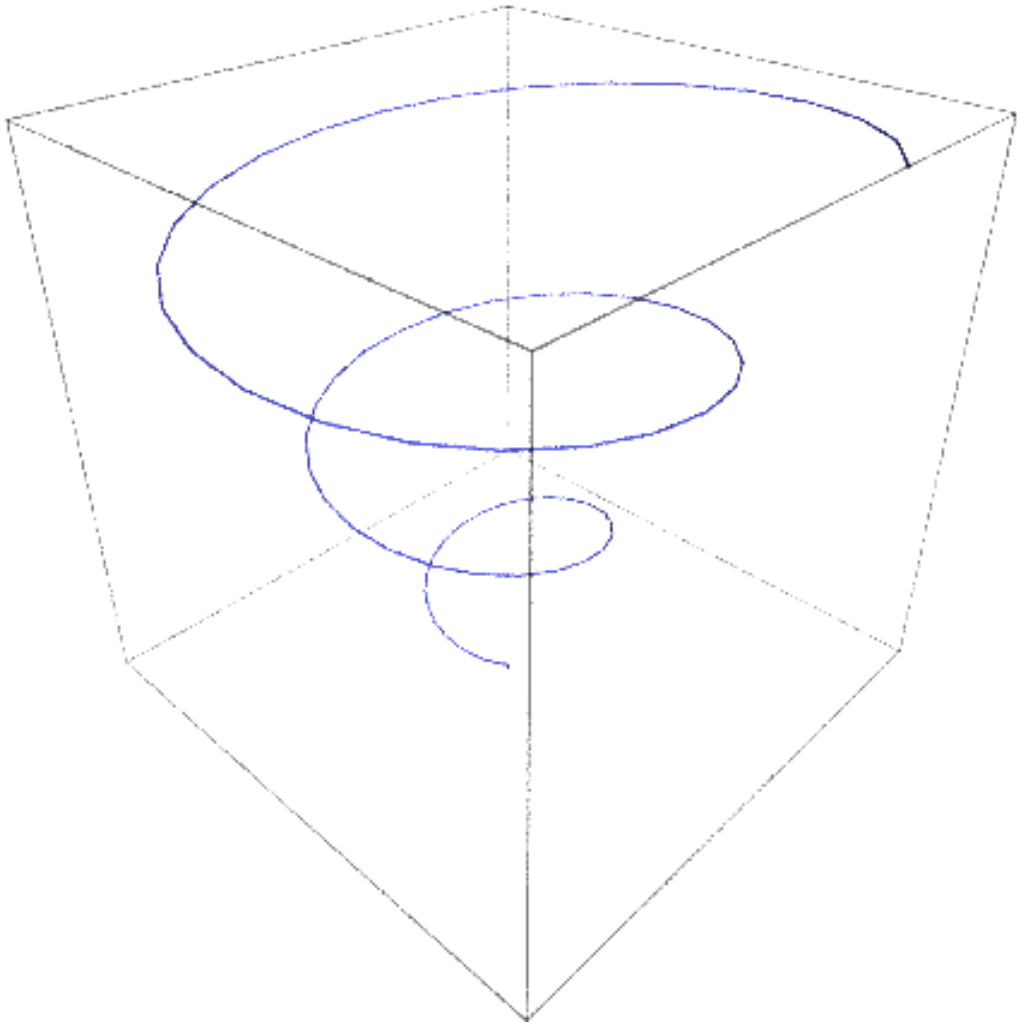

Figure 1: Trajectory