Introduction to the Polar Wave

Brinley Patterson[1]
[1] *Email: brinpat@virginmedia.com*

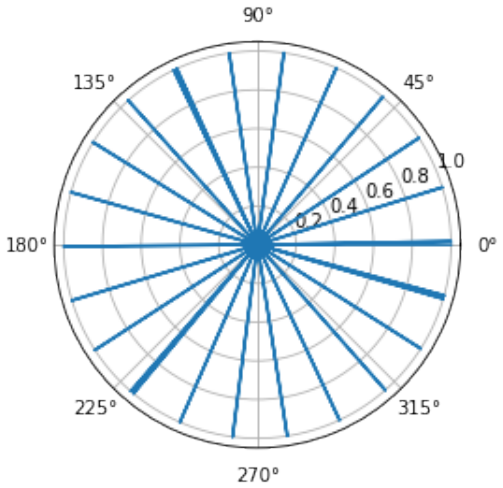

FIG. 1. Top left we have exponential function seen in equation.

INTRODUCTION

A polar wave is a sinusoidal function in polar coordinates. Hence a polar wave may be a radial wave function.

POLAR WAVE

All figures below use the following translation from Cartesian to Polar coordinates:

$$x = rcos(\theta) \tag{1}$$

$$y = rsin(\theta) \tag{2}$$

where,

$$0 \leq \theta \leq 2\pi \tag{3}$$

For a circle, $r = constant$, however for a polar wave,

$$r = Asin(f\theta + 2\pi\lambda) \tag{4}$$

We obtain figure by using the following equation,

$$r = sin(2\theta) \tag{5}$$

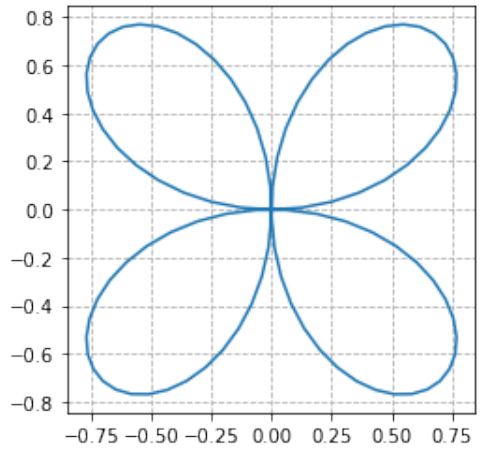

FIG. 2. Top left we have exponential function seen in equation.

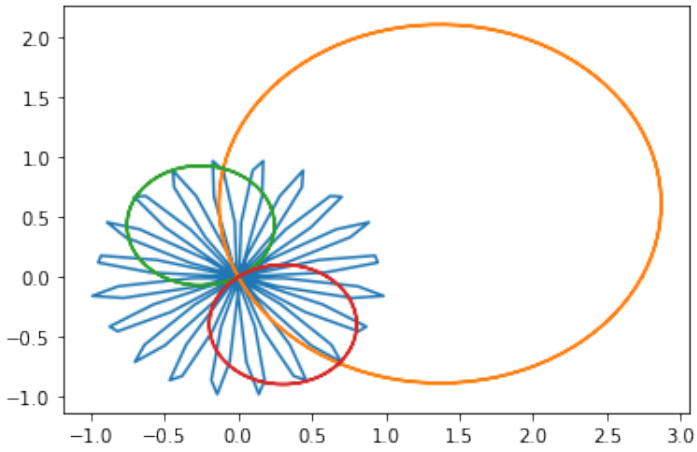

FIG. 3. Top left we have exponential function seen in equation.

which constructs a Polar wave with 4

$$r1 = sin(10\theta) \tag{6}$$

$$r2 = 3sin(\theta + 20) \tag{7}$$

$$r3 = sin(\theta + 100) \tag{8}$$

$$r3 = sin(\theta + 147) \tag{9}$$

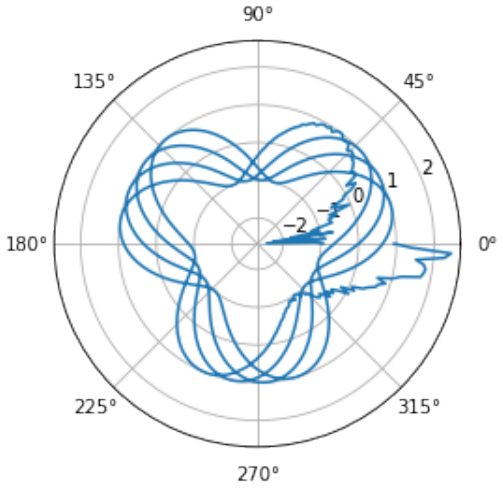

FIG. 4. Top left we have exponential function seen in equation.

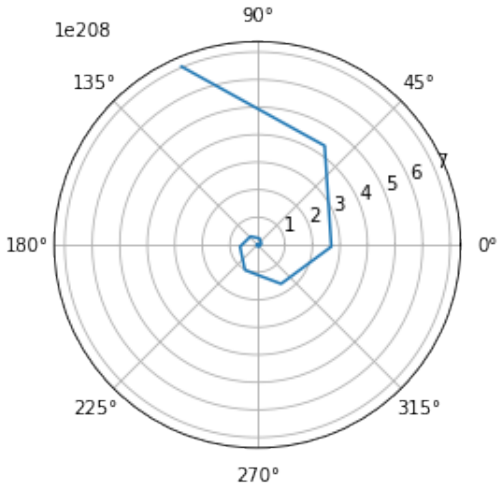

FIG. 5. Top left we have exponential function seen in equation.

SPIRAL POLAR WAVE

POLAR WAVE INTERFERENCE

The summation of polar waves creates a single polar wave interference pattern similar to Cartesian wave interference.

$$r = sin(10\theta) + 3sin(\theta + 20) + 3sin(\theta + 20) + \sin(\theta + 100) + 3sin(\theta + 147) \quad (10)$$

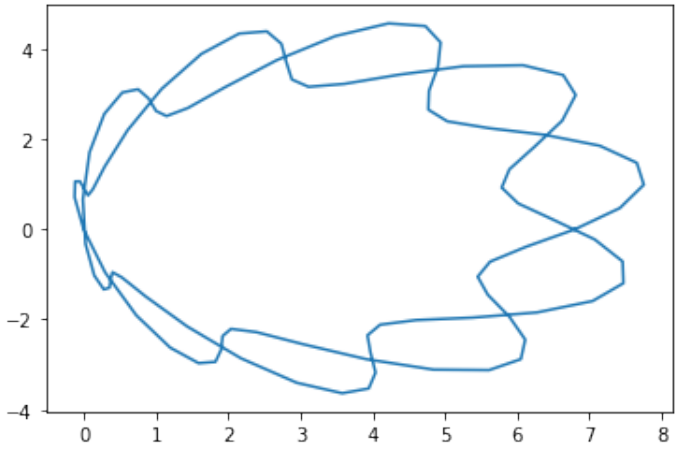

FIG. 6. Top left we have exponential function seen in equation.

POLAR WAVE MATHEMATICS

MODEL ELEMENTARY PARTICLES

MODEL RELATIVISTIC OBJECTS

MODEL FORCES

PARTICLE ENERGY INTERACTIONS

CONCLUSION

[1] J Earman, M Friedman. *The meaning and status of Newton's law of inertia and the nature of gravitational forces.* (1973). The University of Chicago Press Journals.

[2] D Breuer, S Labrosse, T Spohn. *Thermal evolution and magnetic field generation in terrestrial planets and satellites.* (2010). Springer.

[3] A.P. Vanden Berg, D.A. Yuen, G. Beebe, M.D. Christiansen. *The dynamical impact of electronic thermal conductivity on deep mantle convection of exosolar planets.* (2010). Elsevier.