Interference, version 1.0, 2021-08-01

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This program shows the interference of two circular waves, each of which is modeled by

so that

r1, t) + w(r2, t) is the function whose value at a point is represented by a colored dot, blue for negative, red for positive and green for zero values.

Here (x,y) is position in a 1m x 1m square, t is time in seconds, r1, r2 the distances to the point-shaped sources (in meters), f the frequency, ω=2πf the circular frequency, λ the wavelength and k= the wave number. The wave velocity is chosen to be 1 m/s.

Controls:

arrow keys move the cursor (across), to display the function value at that point

[+] increase frequency

[-] decrease frequency

[\*] increase distance of sources

[/] decreas distance of sources

Enter start/stop animation

Esc stop animation

[s] take a single time step

[n] begin fronm scratch

[0] stop animation

[1] start animation