

Multiple Source Interference

Add together $N+1$ spherical wave sources spread out evenly over a distance d along the y axis. Then make a movie of the propagating wave fronts.

```
val = {k → 8 π, d → 1, N → 4, ω → π / 4};
```

$$\text{wfunc}[x_, y_, t_] = \sum_{n=-N/2}^{N/2} \frac{1}{\sqrt{x^2 + \left(y - \frac{nd}{N}\right)^2}} \text{Sin}\left[k \sqrt{x^2 + \left(y - \frac{nd}{N}\right)^2} - \omega t\right];$$

```
wplot[t_] := DensityPlot[Evaluate[wfunc[x, y, t] /. val], {x, 0, 4}, {y, -2, 2},  
  PlotPoints → 80, PlotRange → {-1, 1}];
```

```
Table[wplot[t], {t, 0, 7, 1}];
```

