

- Find the electric field at any point in the x - y plane due to a straight-line segment of length $2L$ and linear charge density λ . The segment is located along the x -axis with its midpoint at the origin.
- Use Mathematica to show on the same plot the segment and a stream plot of the electric field in the range $-3 \leq x \leq 3$ and $-3 \leq y \leq 3$. Use $L = 1$ and $\lambda = 4\pi\epsilon_0$. Note the stream plot gives the direction of the electric field but its line density is not proportional to the strength of the electric field.