

Warm-Up for February 18th, 2022

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February 18, 2022

1 Electrostatics

1. Find the electric field at a distance z above the midpoint of a straight line segment of length $2L$ that carries a uniform line charge λ (Fig. 1)

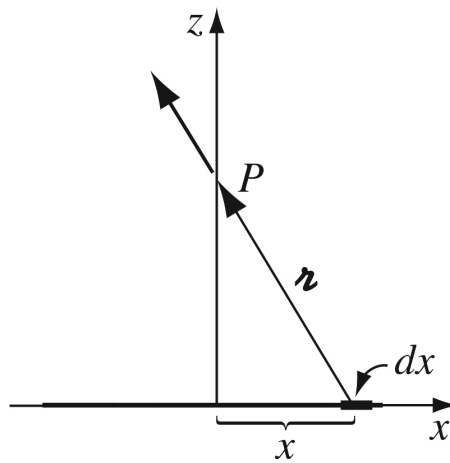


Figure 1: A line of continuous, positive charge.

2. Re-work exercise 1, if the right side of the line is negative charge. How does this field compare to the dipole system in the far-field limit?