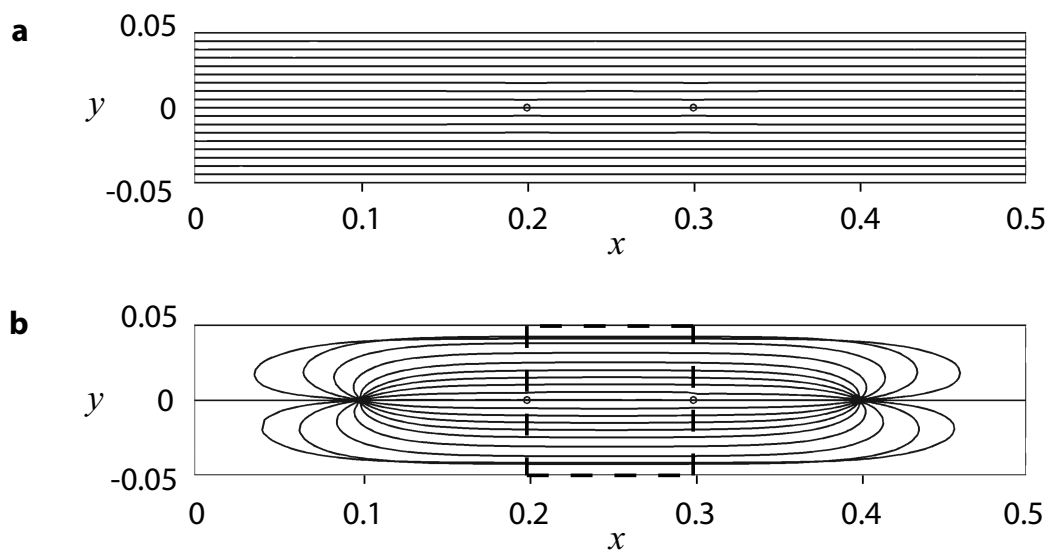


**Figure 1.** For the infinite, two dimensional square lattice there is no bulk transport below its percolation threshold  $p_c$  with the effective conductivity  $\sigma^* = 0$  for  $p \leq p_c$ , while  $\sigma^*(p)$  increases with power law behavior just above  $p_c$ , as shown in (a). In (b) the corresponding effective resistivity  $\rho^* = 1/\sigma^*$  diverges as  $p \rightarrow p_c^+$  with a vertical asymptote at  $p = p_c$ .



**Figure 2.** Comparison of field lines for a parallel plate configuration in (a) with those for a four probe Wenner array in (b). In the region of interest inside the dotted box in (b), the field lines are almost indistinguishable from those inside the corresponding region in (a).