Important Special Case
Uniform Electric Field
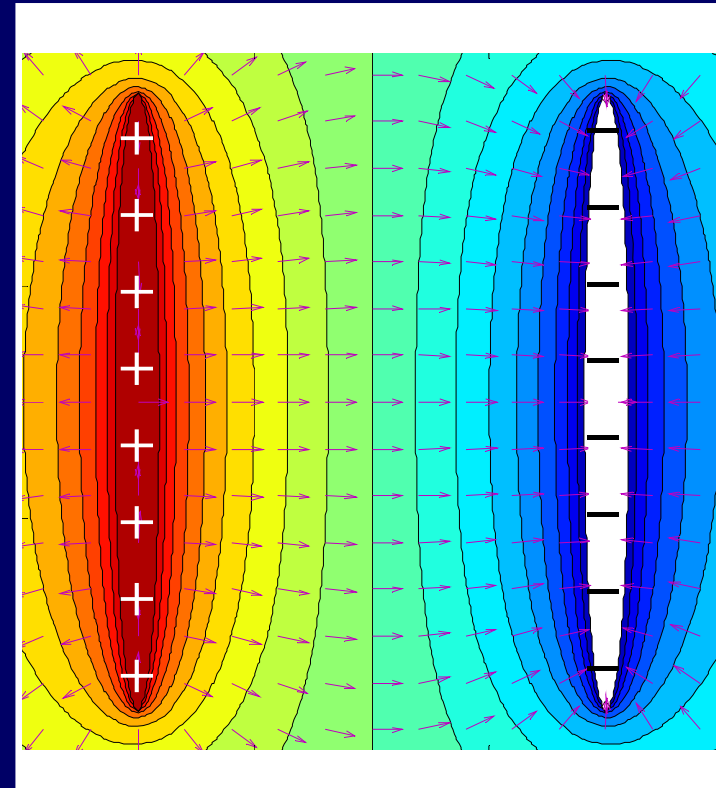
Two large parallel conducting plates of area A

+Q on one plate

−Q on other plate

Then E is

- uniform between the two plates:

E=4πkQ/A

- zero everywhere else

- This result is independent of plate separation

This is called a parallel plate capacitor