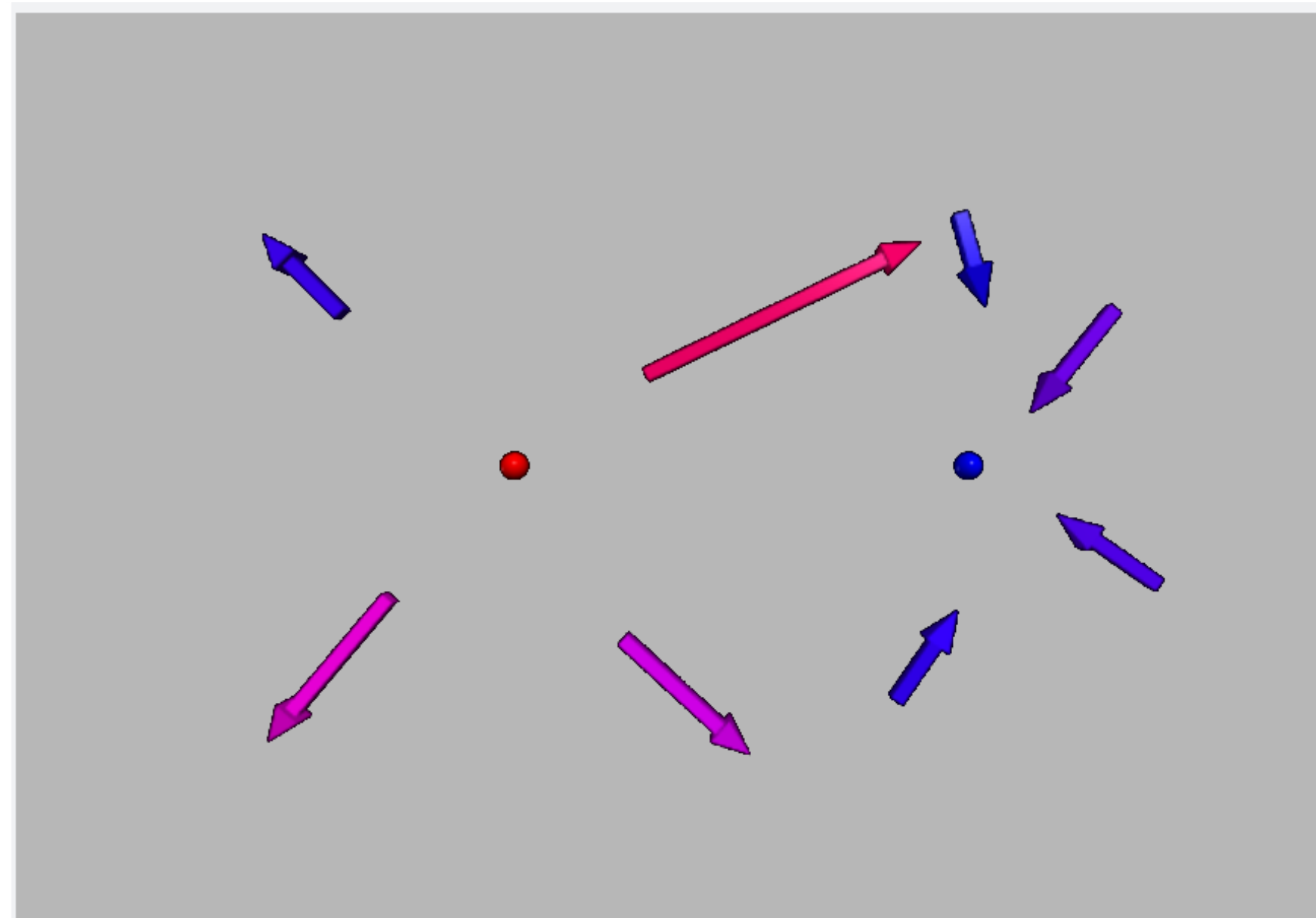


```

1 GlowScript 2.7 VPython
2
3 scale = 4e-14/1e17
4 ec = 1.6e-19 # electron charge
5 kel = 9e9    # Coulomb constant
6 scene.range = 2e-13
7
8 charges = [ sphere( pos=vector(-1e-13,0,0), Q=ec,  color=color.red,  size=1.2e-14*,
9                sphere( pos=vector( 1e-13,0,0), Q=-ec, color=color.blue, size=1.2e-14*)
10
11 s = "Click or drag to plot an electric field vector produced by the two charges.\n"
12 s += "On a touch screen, tap, or press and hold, then drag.\n"
13 s += "Arrows representing the field are bluer if low magnitude, redder if high."
14 scene.caption = s
15
16 def getfield(p):
17     f = vec(0,0,0)
18     for c in charges:
19         f = f + (p-c.pos) * kel * c.Q / mag(p-c.pos)**3
20     return f
21
22 def mouse_to_field(a):
23     p = scene.mouse.pos
24     f = getfield(p)
25     m = mag(f)
26     red = max( 1-1e17/m, 0 )
27     blue = min( 1e17/m, 1 )
28     if red >= blue:
29         blue = blue/red
30         red = 1.0
31     else:
32         red = red/blue

```



Click or drag to plot an electric field vector produced by the two charges.  
 On a touch screen, tap, or press and hold, then drag.  
 Arrows representing the field are bluer if low magnitude, redder if high.