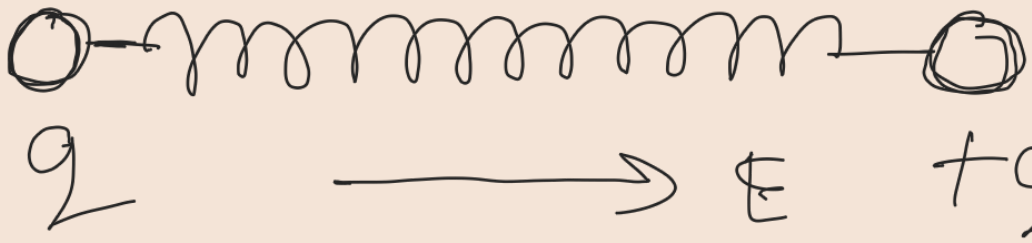
The spring is conducting in this situation.



Due to the external electric field, the balls will acquire some induced charges. The potential difference due to their own charges must counterbalance the potential difference due to external electric field

Hence, $\frac{2q}{2\pi\epsilon_0 r} = (El)$.

$q = 2\pi\epsilon_0 Erl$. Now, suppose distance between the balls increase by 'dl'. The charge increment will be dq

$= 2\pi\epsilon_0 E r (dl)$. Hence, the electric field force increment $= (dq)E$

$= 2\pi\epsilon_0 E^2 r (dl)$.

Now to maintain the stability of equilibrium, the increment of spring force must supersede the increment of electrostatic pulling force. Hence

$$k(dl) > 2\pi\epsilon_0 E^2 \gamma (dl)$$

$$\boxed{k > 2\pi\epsilon_0 E^2 \gamma}$$