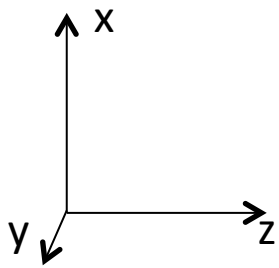
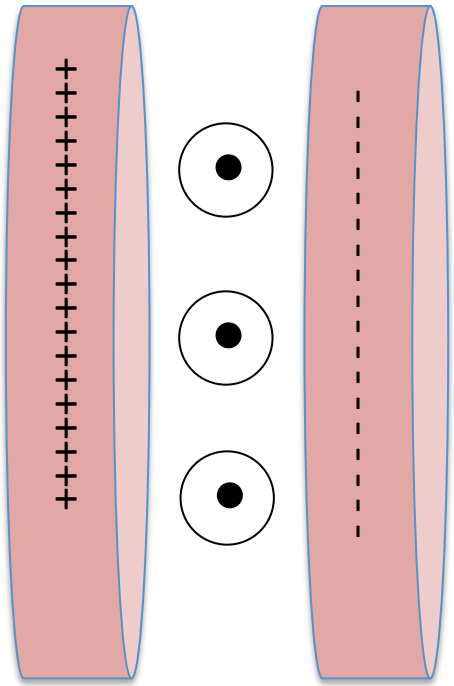
Momentum in the fields: $\vec{p}_{EM} / volume = \mu_0 \varepsilon_0 \vec{\mathbf{S}}$

Consider a charged capacitor placed in a uniform B field in the +y direction



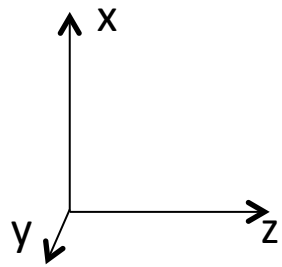


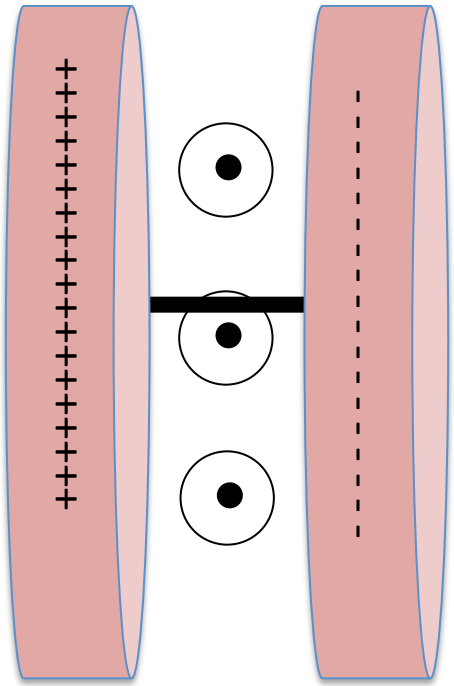
Which way does the stored field Momentum in this system point?

A) +/- x
B) +/- y
C) +/- z
D) Zero!
E) Other/???

Momentum in the fields: $\vec{p}_{EM} / volume = \mu_0 \varepsilon_0 \vec{\mathbf{S}}$

Now "short out" this capacitor with a small wire.
As the current flows, (while the capacitor is discharging)…





which way does the magnetic force push the wire (and thus, the system)?

A) +/- x
B) +/- y
C) +/- z
D) Zero!
E) Other/???

Is your answer consistent with "conservation of momentum"?