

**50855, Physics, Electromagnetism**

**Question** Do the following fields satisfy all four Maxwells equations?

$$E(t) = E_0 \sin x \sin t$$

$$B(t) = B_0 \cos x \cos t$$

**Solution** It is easy to see, that, for example Maxwell equation

$$\nabla B = 0$$

is not satisfied. Indeed

$$\nabla B = -B_0 \sin x \cos t$$

Hence, following fields do not satisfy all four Maxwells equations.