Answer on Question #81782, Physics / Electromagnetism

Question:

Why electric field and magnetic field H and propagation constant they are mutually perpendicular to each other.

Solution:

It follows from Maxwell's equations system – one of its solutions is electromagnetic wave, where vectors $\overline{E}$ and $\overline{H}$ are perpendicular to each other. The direction of the wave (direction of energy transfer) is pointed by Pointing's vector $\overline{S} = \overline{E} \times \overline{H}$, which is evidently perpendicular to $\overline{E}$ and $\overline{H}$.

The answer:

See above.