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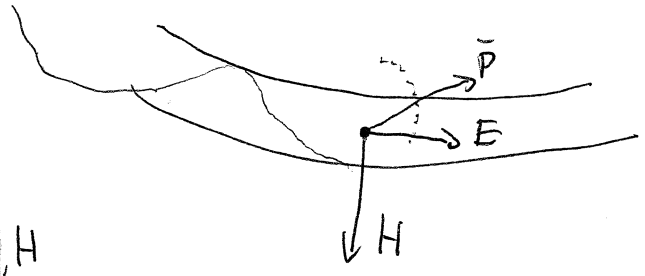
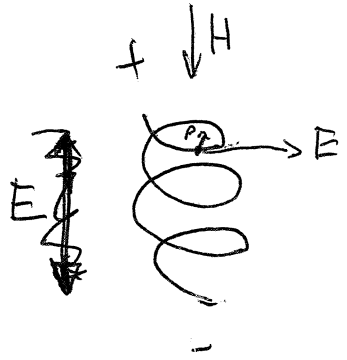
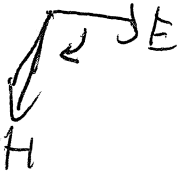
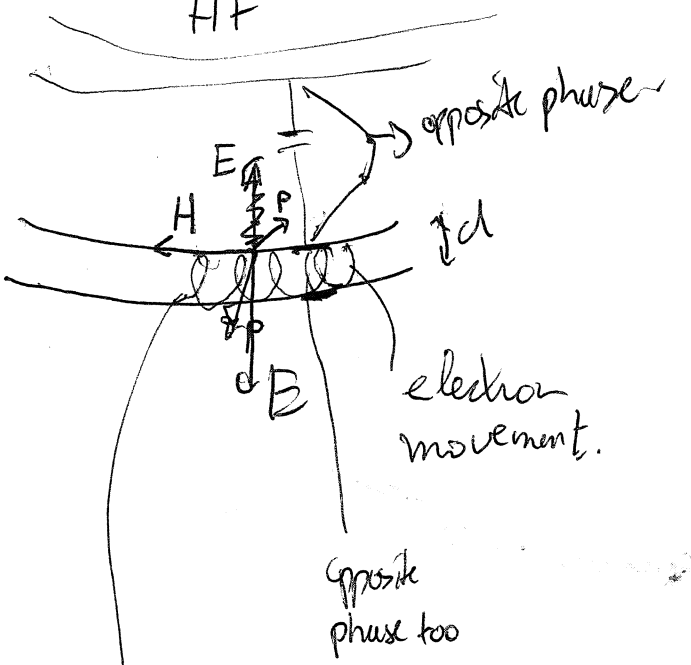
LF




HF




normal caps won't work, because need the spiral

electrons move less in horizontal direction, because magnetic field moves into a direction parallel to the wire.
Ultimately, when $d = 0$, no current at all!

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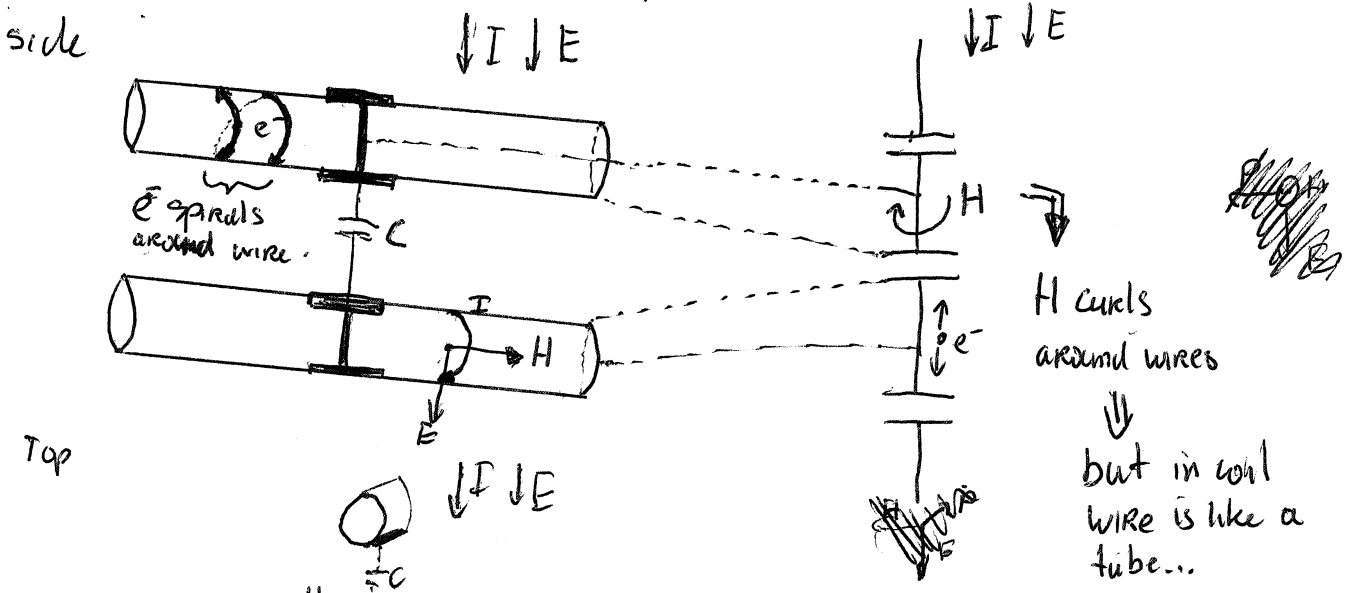
2 Coil windings, Extremely High Freq / Longitudinal component

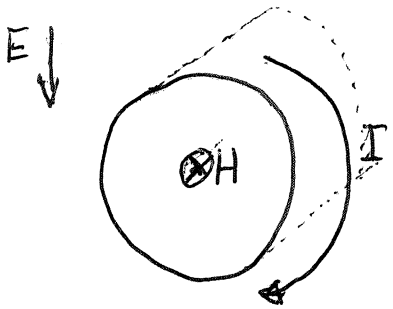
Parasite capacitance model

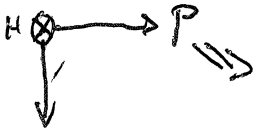



⇒ electrons move across surface, which is round

⇒ Rotation, spiraling

⇒ H ϕ trough wire




⇒ Poynting vector outwards of coil, same direction across wire surface!

Conclusion: The longitudinal component of the wave across coil windings, has the magnetic field component H in parrealled with the wire, while the current moves perpendicular to the coil wire, across the surface.

In other words: for $f \to \infty$, the external supplied current $\to 0$ !

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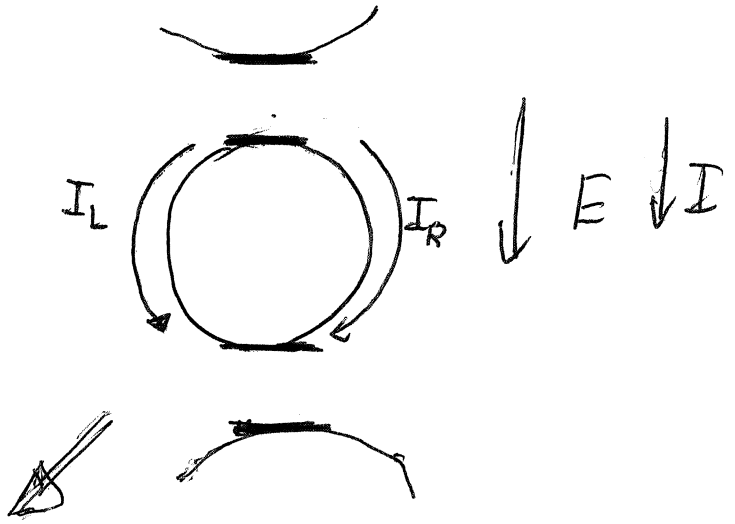
H might even be 0:




No reason to assume there is a difference in $I_L$ and $I_R$. Probably 50% of the electrons go left, 50% go right.

$\Rightarrow H_{Left} == H_{Right} \Rightarrow H_{Res} == 0$ !

Conclusion: because of the shape of the coil wires, a pure electrical wave is possible, without magnetic component, and without net electrical current to feed in from the outside.

$\Rightarrow$ * transversal component requires external current to keep going

* longitudinal component powers itself, delivers "pure" potential