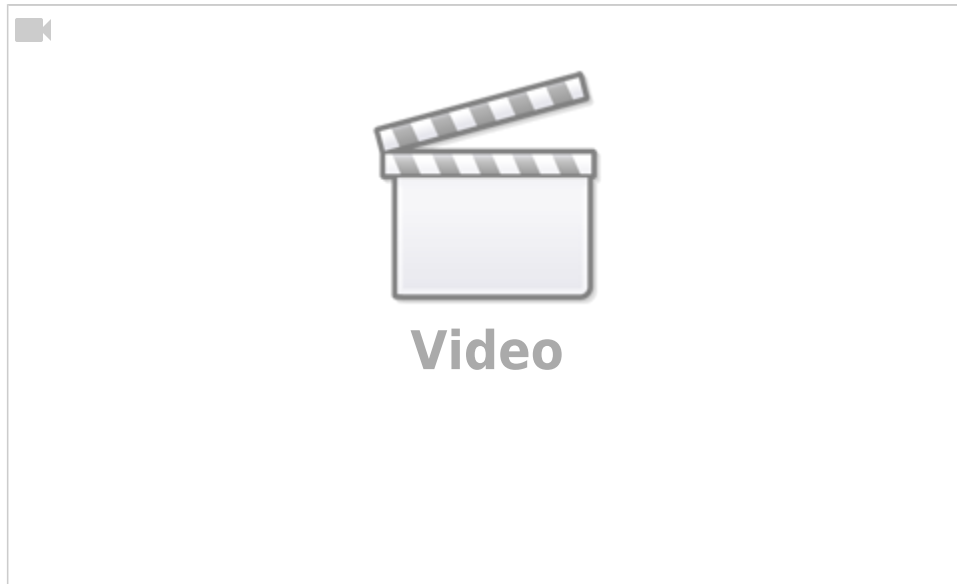


Conceptual Electronics Videos

I just found a series of videos that animate various physics concepts. The first one I found was on the concept of impedance:



But this was #15 in a [series of 24 videos](#). I just finished watching the first few and they basically managed to start from scratch and work their way up to Electro-Magnetism. Pretty cool! One thing they could have improved is the labelling:

- Red particles are positive charges
- Blue particles are negative charges
- Purple arrows are electric fields
- Green arrows are magnetic fields.

Also, this first video can seem overwhelming, with all these fields creating each other, but there's really only four rules:

Name	Math	Description
Gauss' Law	$\vec{\nabla} \cdot \vec{E} = \frac{\rho}{\epsilon_0}$	An electric charge (right) creates an electric field that points away from the charge and "disperses" to infinity (left)
Gauss' Law of Magnetism	$\vec{\nabla} \cdot \vec{B} = 0$	A magnetic field (left) can not "disperse" to infinity the way an electric field can. In other words: they are no "magnetic charges" the way there are electric charges
Faraday's Law of Induction	$\vec{\nabla} \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$	