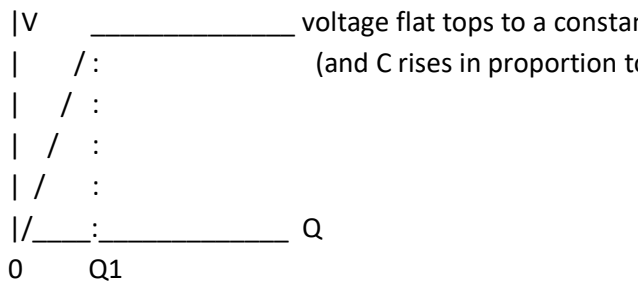
If gravity is a gradient in the permittivity of free space increasing as we get closer to a large mass M, does that gradient in permittivity contain its own energy? This isn't easy to visualize how the energy is stored. A simple experiment may clarify the gradient in permittivity does contain energy.

Suppose we have an air spaced capacitor of parallel plates with capacitance C (which is proportional to the permittivity). Using the simple formula Q = CV where Q is charge and V is voltage on the capacitor plates we see that adding more Q causes the V to rise if C is constant up to Q1. Once the voltage reaches a maximum level with Q1 charge on the capacitor the permittivity "breaks" and rises to hold the voltage at a constant level as more Q is added.



What we now have is just a standard battery. We keep putting more and more Q on the plates and energy is going into the capacitor or battery as the C rises. So now we have a direct relationship between energy going into the capacitor with rising C and the energy being stored in that rising C. So as we continue to put in more and more Q we could eventually put in an infinite amount of energy in the permittivity and its positive energy. If we put a load on this capacitor the energy would come back out just like a battery discharging.

The conclusion is that a rise in permittivity or capacitance contains its own energy and that energy can be released also in the right kind of conditions. Now I need a new example that limits the maximum amount of energy that can be stored in space. I'm thinking the C may be an inverted parabola. This would limit the maximum energy in the capacitor and it would also make a negative region on the right side of the parabola which would likely be oscillatory, unstable between the movement of charge and change in voltage, i.e. a radially vibrating electron.

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