Can capacitor voltage suddenly change current

Can a capacitor's voltage change instantaneously?
This isn't physically possible,so a capacitor's voltage can't change instantaneously. More generally,capacitors oppose changes in voltage|they tend to \want" their voltage to change \slowly". An inductor's current can't change instantaneously,and inductors oppose changes in current.

What happens if a capacitor is introduced into a circuit?
If a capacitor is introduced into this circuit, it will gradually charge until the the voltage across it is also approximately 5V, and the current in this circuit will become zero. What is now preventing us from suddenly changing the voltage from 5V to let's say 10V (again like a step increase - instantaneously)?

What happens when a capacitor voltage is changed?
When a voltage is suddenly applied or changed across a capacitor,it cannot immediately adjust to the new voltagedue to the time it takes for the capacitor to charge or discharge. This delay is characterized by the capacitor's capacitance (C) and the resistance (R) in the circuit,forming a time constant (? = RC).

What happens if a capacitor is added to a resistor?
We now apply a voltage of 5V to the circuit (like a step increase - instantaneously). The voltage across the resistor changes instantaneously to 5V. If a capacitor is introduced into this circuit, it will gradually charge until the the voltage across it is also approximately 5V, and the current in this circuit will become zero.

How does a capacitor affect a current through an inductor?
When the current through an inductor changes,it induces a voltageacross the inductor according to Faraday's Law of electromagnetic induction. Similarly,when the voltage across a capacitor changes,it induces a current through the capacitor due to the relationship Q = CV (charge equals capacitance times voltage).

Can inductor voltage and capacitor voltage change abruptly?
I understand that inductor current and capacitor voltage cannot change abruptly,but can inductor voltage and capacitor current change abruptly? I have a feeling the answer is no but I cannot explain why. By clicking "Post Your Answer",you agree to our terms of service and acknowledge you have read our privacy policy.

Immediately after the sudden change is over, the capacitor starts charging up. If the voltage across the capacitor remains constant for a long time, the capacitor will act like an open circuit. ...

When a voltage change occurs in a circuit, the capacitor acts as a temporary voltage buffer, absorbing or releasing charge to maintain a steady voltage. This prevents ...

When a voltage is suddenly applied or changed across a capacitor, it cannot immediately adjust to the new

voltage due to the time it takes for the capacitor to charge or discharge. This delay is ...

If the voltage changes instantly from one value to another (i.e. discontinuously), the derivative is not finite. This implies that an infinite current would be required to instantly change the voltage. Since an infinite current is ...

But unlike a Capacitor which oppose a change of voltage across their plates, an inductor opposes the rate of change of current flowing through it due to the build up of self-induced energy within its magnetic field. ... Then as explained many ...

This can cause a voltage spike or voltage transient as the inductor resists the sudden change in current. The induced voltage across the inductor is given by Faraday"s Law ...

The voltage v across and current i through a capacitor with capacitance C are related by the equation C + v i i = C dv dt; where dv dt is the rate of change of voltage with respect to time. 1 ...

These occur because parasitic inductance L1 opposes those sudden current transients. These changes to supply potential could be devastating to anything sensitive (like ...

As long as you don"t have a source of infinite current, the voltage on a capacitor will not change instantaneously. That is the principle of voltage continuity for a capacitor. ... The voltage on a ...

Yes, abrupt voltage changes in a capacitor can cause damage to the capacitor itself and other components in the circuit. This is because sudden changes in voltage can ...

When the capacitor"s voltage matches the supply voltage, the charging stops. This flow of electrons from the source to the capacitor is called electric current. Initially, the current is at its maximum, but over time, it ...

change, the capacitor or inductor takes some time to charge or discharge, and eventually settles on its new steady state. We call the response of a circuit immediately after a sudden change ...

I can understand that the voltage can change immediately, but the current? When the capacitor is charged there is 12 V on it. When you switch to the discharge resistor you ...

Likewise for capacitors you can get large current changes based on the rate of change for voltage $Big(dfrac{dV}{dt}Big)$. In your experiment the voltage was changed almost instantly say ...

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