Review of: "Production of nano supercapacitors using nanoparticles (a piezoelectric and ferroelectric material)"

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Review of: "Production of nano supercapacitors using nanoparticles (a piezoelectric and ferroelectric material)"

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Potential competing interests: No potential competing interests to declare.

> ***Note: Production of nano supercapacitors using nanoparticles that can be polarized so that electrical energy can be stored. Nanostructure multilayer technology (solid state) is a known dielectric material used in nano supercapacitors because it is a piezoelectric and ferroelectric material. In this work, by creating passive filters, they provide storage between different types of these electric nano layers.***

The degree of electrical properties in solid materials (nanosupercapacitors) is very diverse. Based on the amount of resistance (nano supercapacitors) against the passage of electric current, different materials can be divided into categories classified as conductor, semiconductor, and insulator. Meanwhile, in superconductors, there is a different mechanism to guide electrons. (Nano supercapacitors) can be defined as the number of free electrons that move freely in the material under the influence of an external electric field, as well as mobility, which is a measure of the ability and speed of free electrons to move, attributed.

Dielectric properties or electrical insulation in (nano supercapacitors)

In (nano supercapacitors), it is an electrical insulator that can be polarized by applying an electric field. In the structure of (nano supercapacitors), the ideal dielectric does not have free charge. When a dielectric is placed in an external electric field, the induced free charges that moved to the surface in the conductors and made the charge density and the internal electric field zero no longer exist. But because the dielectric (nano supercapacitors) has a limited charge, it cannot be concluded that there is an effect on the electric field. They don't have it.

Piezoelectric effect or effect of electric pressure in (nano supercapacitors)

One of the unusual features that some (nano supercapacitors) show is the piezoelectric phenomenon or effect of electric pressure. By applying an external force, the dipoles of these (nano supercapacitors) are stimulated and the electric field is created. Reversing the effect of the force (for example, from tensile to compressive) reverses the direction of the field.

Effect of pyroelectricity or effect of electric pressure in (nano supercapacitors)

Pyroelectricity is a phenomenon that when heat is given to a substance, that substance produces electricity. This phenomenon is similar to the thermoelectric phenomenon in (nano supercapacitors), but it is different. The change in temperature slightly changes the atomic position in the crystal structure, so that the polar state of the dielectric material changes. This polarity change causes an increase in the voltage in nano-supercapacitors.

> ***Conclusion :***
>
> ***Production of nano supercapacitors using nanoparticles that can be polarized so that electrical energy can be stored. Nanostructure multilayer technology (solid state) is a known dielectric material used in nano supercapacitors and is used because it is a piezoelectric and ferroelectric material. In this work, by creating passive filters, they provide storage between different types of these electric nano layers.***

[1][2][3][4][5][6][7][8][9][10][11][12]

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