Claims

What is claimed is:

1. A method for making a solid state energy device comprising the steps of:

   a. contacting a layer of electron rich donor matrix paste which includes a suspension liquid and a principal electron-rich conductive, donor material to a first electrically conductive substrate,

   b. drying the matrix paste on the surface of the conductive substrate, such that the electron rich donor matrix paste stabilizes,

   c. applying onto the dried donor material matrix, a layer of an acceptor matrix paste which includes a suspension liquid and a hole-rich acceptor material capable of accepting electrons from the electron donor layer of step a for the purpose of forming an electrostatic potential at the two matrices interface,

   d. applying a second electrically conductive substrate to the donor matrix paste of step c,

   e. drying of this final fundamental cell, such that the second electrically conductive substrate is bound in a stable manner to the donor matrix paste of step c,

   f. absorbing an ionic fluid into the cell, as an electric charge transportation mechanism.

2. The method of claim 1, wherein a binder is added to at least one of the matrix pastes.

3. The method of claim 1, wherein an ionic substance is added to at least one of the matrix pastes.

4. The method of claim 1, further comprising the step of:
   sealing of the cell with a non-electrically conductive sealant after the absorption of the ionic solution, thereby maintaining fundamental cell integrity and preventing ionic fluid evaporation or spillage.

5. A solid state energy device, comprising at least one cell, the cell comprising a layer of electron-rich donor material in contact with a hole-rich acceptor material, both layers in electrical contact with a circuit, and an ionic fluid into and between the donor and acceptor materials to facilitate the flow of electrons from one side of the cell to the other, thereby creating a cell with an electric potential across the interface of the donor and acceptor materials.

6. The solid state device of claim 5, wherein the donor material is selected from the group consisting of n-type materials that are considered to be conductive and electron rich.

7. The solid state device of claim 5, wherein the acceptor material is selected from the group of p-type materials that are considered to be hole-rich.

8. The solid state energy device of claim 5, wherein the electron-rich donor material is selected from the group consisting of aluminum, copper, iron, steel, stainless steel, nickel, nichrome, lead, carbon, brass, titanium, tungsten, chromium, silver, gold, and platinum.

9. The solid state energy device of claim 5, wherein the hole-rich acceptor material is selected from the group consisting of Oxides, Carbides, Borides, Silicides, Silicates and Nitrides.

10. The solid state energy device of claim 5, wherein the ionic fluid is selected from the groups consisting of water, glycols, salts and combinations thereof

11. A method for pushing current through a resistive load the methods steps including:
    a. providing a solid state energy device comprising at least one cell connected to an open circuit, the cell comprising a layer of electron-rich donor material in contact with a hole-rich acceptor material, both layers in electrical contact with the open circuit, and an ionic fluid into and between the donor and acceptor materials to facilitate the flow of electrons from one side of the cell to the other, thereby creating a cell with an electric potential across the interface of the donor and acceptor materials,
    b. connecting a resistive load across the open circuit such that the circuit is closed and current is pushed through the resistive load.

12. The method according to claim 11, wherein the resistive load is such that it allows the recombination of electrons and holes to occur at a rate that maintains a constant voltage and current thereby causing the cell to behave as a generator in that the power output is maintained and controlled at a steady state capacity.

13. The method according to claim 11, wherein the resistive load is greater than a load that allows the recombination of electrons and holes to occur at a rate that maintains a constant voltage and current.

14. The method according to claim 11, further including the step of applying energy to the device in order to raise the output of the fundamental cell.

15. The method according to claim 14, wherein the energy is selected from the group consisting of thermal energy and electromagnetic energy and combinations thereof.

Claims:

What is claimed is:

1. A solid state energy device comprising a cell, the cell comprising a layer of electron-rich donor material (22) in contact with a layer of hole-rich acceptor material (21), both layers (22, 21) in electrical contact with a circuit;

characterised by an ionic fluid absorbed in the cell to facilitate the flow of electrons from one side of the cell to the other, thereby creating a cell with an electric potential across the interface of the donor and acceptor materials (22, 21).

2. A solid state device as claimed in Claim 1, wherein the donor material (22) is an n-type material that is considered to be conductive and electron-rich.

3 A solid state device as claimed in Claim 1, wherein the acceptor material (21) is a p-type material that is considered to be hole-rich.

4. A solid state energy device as claimed in Claim 1, wherein the electron-rich donor material (22) comprises graphite or another carbon powder.

5. A solid state energy device as claimed in Claim 4, wherein the electron-rich donor material (22) further comprises sodium chloride.

6. A solid state energy device as claimed in Claim 1, wherein the hole-rich acceptor material (21) is selected from a group consisting of: praseodymium oxide; titanium oxide; tin oxide; nickel oxide; iron oxide; chromium oxide; manganese oxide; thorium oxide; a praseodymium oxide mix containing also zirconium and silica compounds; silicon carbide; zinc oxide; aluminium oxide; cuprous oxide; cupric oxide.

7. A solid state energy device as claimed in Claim 6, wherein the hole-rich acceptor material (21) further comprises sodium chloride.

8. A solid state energy device as claimed in Claim 1, wherein the ionic fluid consists of the following ingredients in any proportion: water, propylene glycol and sodium chloride.

9. A method for pushing current through a resistive load, the method including connecting a resistive load to a device as claimed in Claim 1.

10. A method as claimed in Claim 9, wherein the resistive load is such that it allows the recombination of electrons and holes to occur at a rate that maintains a constant voltage and current.

11. A method as claimed in Claim 9, further comprising adding heat from thermal or electromagnetic sources to cause free electrons to gain kinetic energy and thereby increase the built-in voltage of the cell.