Claims

1. A power transmission system, comprising:

(a) a power source,

(b) a load, and

(c) a capacitive cable,

wherein the capacitive cable comprises:

(i) a first plurality of conductors,

(ii) a second plurality of conductors, and

(iii) a dielectric material between the first plurality of conductors and the second plurality of conductors,

wherein each conductor is individually insulated, and

wherein at least one of the conductors of the first plurality of conductors and at least one of the conductors of the second plurality of conductors are woven or wound into one or more bundles such that each individual conductor repeatedly transitions, along a length of the one or more bundles, between an outside of the one or more bundles and an inside of the one or more bundles, and

wherein:

(i) the first plurality of conductors of the capacitive cable is connected to the power source but not to the load, and

(ii) the second plurality of conductors of the capacitive cable is connected to the load but not to the power source.

2. A power transmission system as claimed in claim 1, wherein all of the conductors of the capacitive cable are woven or wound into the one or more bundles.

3. A power transmission system as claimed in claim 1 or claim 2, wherein the proportion of the length of the one or more bundles over which each conductor of the capacitive cable is at the outside of the bundle is similar or the same between the conductors.

4. A power transmission system as claimed in any one of claims 1-3, wherein the conductors of the capacitive cable are woven or wound into one bundle and each conductor is individually insulated using a dielectric material.

5. A power transmission system as claimed in any one of claims 1-3, wherein the conductors of the capacitive cable are woven or wound into a plurality of bundles.

6. A power transmission system as claimed in claim 5, wherein the first plurality of conductors of the capacitive cable is woven or wound into a first bundle and the second plurality of conductors of the capacitive cable is woven or wound into a second bundle.

7. A power transmission system as claimed in claim 5, wherein the first plurality of conductors of the capacitive cable is woven or wound into a first plurality of bundles and the second plurality of conductors of the capacitive cable is woven or wound into a second plurality of bundles.

8. A power transmission system as claimed in claim 7, wherein the first plurality of bundles and the second plurality of bundles are arranged into one or more concentric rings of bundles.

9. A power transmission system as claimed in any one of claims 1-8, wherein each bundle is Litz wire.

10. A power transmission system as claimed in any one of claims 1-9, wherein the insulation of the first plurality of conductors of the capacitive cable is of a different colour to the insulation of the second plurality of conductors of the capacitive cable.

11. A power transmission system as claimed in any one of claims 1-10, wherein the bundles are arranged into two or more capacitive sub-cables within the capacitive cable.

12. A power transmission system as claimed in any one of claims 1-11, wherein the capacitive cable comprises:

(a) a third plurality of conductors,

(b) a fourth plurality of conductors, and

(c) a dielectric material between the third plurality of conductors and the fourth plurality of conductors,

wherein each conductor is individually insulated, and

wherein at least one of the conductors of the third plurality of conductors and at least one of the conductors of the fourth plurality of conductors are woven or wound into one or more bundles such that each individual conductor repeatedly transitions, along a length of the one or more bundles, between an outside of the one or more bundles and an inside of the one or more bundles,

wherein:

(i) the third plurality of conductors of the capacitive cable is connected to the power source but not to the load, and

(ii) the fourth plurality of conductors of the capacitive cable is connected to the load but not to the power source, and

wherein:

(i) the first plurality of conductors of the capacitive cable and the second plurality of conductors of the capacitive cable are collectively connected as a transmission line, and

(ii) the third plurality of conductors of the capacitive cable and the fourth plurality of conductors of the capacitive cable are collectively connected as a return line.

13. A power transmission system as claimed in any one of claims 1-12, wherein the first plurality of conductors of the capacitive cable are connected to each other at a first end of the capacitive cable and the second plurality of conductors of the capacitive cable are connected to each other at a second end of the capacitive cable.

14. Use of a capacitive cable in a power transmission system, wherein the capacitive cable comprises:

(a) a first plurality of conductors,

(b) a second plurality of conductors, and

(c) a dielectric material between the first plurality of conductors and the second plurality of conductors,

wherein each conductor is individually insulated, and

wherein at least one of the conductors of the first plurality of conductors and at least one of the conductors of the second plurality of conductors are woven or wound into one or more bundles such that each individual conductor repeatedly transitions, along a length of the one or more bundles, between an outside of the one or more bundles and an inside of the one or more bundles,

wherein:

(i) the first plurality of conductors is connected to a power source but not to a load, and

(ii) the second plurality of conductors is connected to the load but not to the power source.

15. Use of a first capacitive cable and a second capacitive cable in a power transmission system, wherein use of the first capacitive cable and use of the second capacitive cable are each use of a capacitive cable as claimed in claim 14.

16. Use of a first capacitive cable and a second capacitive cable as claimed in claim 15, wherein the first capacitive cable and the second capacitive cable are woven or wound around each other.

17. A method of transmitting power, the method comprising:

(a) connecting a first plurality of conductors of a capacitive cable to a power source but not to a load,

(b) connecting a second plurality of conductors of the capacitive cable to the load but not to the power source, and

(c) activating the power source,

wherein the capacitive cable comprises:

(i) the first plurality of conductors,

(ii) the second plurality of conductors, and

(iii) a dielectric material between the first plurality of conductors and the second plurality of conductors,

wherein each conductor is individually insulated, and

wherein at least one of the conductors of the first plurality of conductors and at least one of the conductors of the second plurality of conductors are woven or wound into one or more bundles such that each individual conductor repeatedly

transitions, along a length of the one or more bundles, between an outside of the one or more bundles and an inside of the one or more bundles.

18. A capacitive cable, comprising:

(a) a first plurality of conductors for connection to a power source,

(b) a second plurality of conductors for connection to a load, and

(c) a dielectric material between the first plurality of conductors and the second plurality of conductors,

wherein each conductor is individually insulated,

wherein at least one of the conductors of the first plurality of conductors and at least one of the conductors of the second plurality of conductors are woven or wound into one or more bundles such that each individual conductor repeatedly transitions, along a length of the one or more bundles, between an outside of the one or more bundles and an inside of the one or more bundles,

wherein the first plurality of conductors is woven or wound into a first bundle and the second plurality of conductors is woven or wound into a second bundle, and

wherein the bundles are distributed radially with respect to each other.

19. A capacitive cable as claimed in claim 18, wherein each conductor is a tubular conductor.

20. A capacitive cable as claimed in claim 18 or claim 19, wherein each bundle is Litz wire.

21. A capacitive cable as claimed in any one of claims 18-20, wherein the insulation of the first plurality of conductors is of a different colour to the insulation of the second plurality of conductors.

22. A capacitive cable as claimed in any one of claims 18-21, wherein the first plurality of conductors is suitable to not be connected to the load, wherein the second plurality of conductors is suitable to not be connected to the power source, and wherein the capacitive cable comprises:

(a) a third plurality of conductors for connection to the power source but not to the load,

(b) a fourth plurality of conductors for connection to the load but not to the power source, and

(c) a dielectric material between the third plurality of conductors and the fourth plurality of conductors,

wherein the first plurality of conductors and the second plurality of conductors are collectively for connection as a transmission line,

wherein the third plurality of conductors and the fourth plurality of conductors are collectively for connection as a return line,

wherein each conductor is individually insulated, and

wherein at least one of the conductors of the third plurality of conductors and at least one of the conductors of the fourth plurality of conductors are woven or wound into one or more bundles such that each individual conductor repeatedly transitions, along a length of the one or more bundles, between an outside of the one or more bundles and an inside of the one or more bundles.

23. A capacitive cable as claimed in any one of claims 18-22, wherein the first plurality of conductors are connected to each other at a first end of the capacitive cable and the second plurality of conductors are connected to each other at a second end of the capacitive cable.