CLAIMS

1. A wireless power transfer system comprising:

a transmitter comprising a transmit electrode set configured to transfer power via resonant electric field coupling; and

a receiver comprising a receive electrode set configured to extract the transferred power via resonant electric field coupling,

wherein the electrodes of at least one of the transmit and receive electrode sets are concentric, and

wherein the plane defined by the electrodes of the transmit electrode set forms an angle with the plane defined by the electrodes of the receive electrode set in the range of more than 0 degrees to 90 degrees.

2. The wireless power transfer system of claim 1, wherein the electrodes of both the transmit and receive electrode sets are concentric.

3. The wireless power transfer system of claim 1, wherein the electrodes of at least one of the transmit and receive electrode sets are coplanar.

4. The wireless power transfer system of claim 1, wherein the electrodes of at least one of the transmit and receive electrode sets are segments of concentric electrodes.

5. The wireless power transfer system of claim 1, wherein the electrodes of at least one of the transmit and receive electrode sets are azimuthally asymmetric.

6. The wireless power transfer system of claim 1, wherein the transmit electrode set comprises two or more concentric electrodes.

7. The wireless power transfer system of claim 1, wherein the receive electrode set comprises two or more concentric electrodes.

8. The wireless power transfer system of claim 1, wherein an electrode of the transmit electrode set overlaps another electrode of the transmit electrode set, or an electrode of the receive electrode set overlaps another electrode of the receive electrode set.

9. The wireless power transfer system of claim 1, wherein at least one electrode of at least one of the transmit and receive electrode sets is elliptical.

10. The wireless power transfer system of claim 1, wherein at least one electrode of at least one of the transmit and receive electrode sets is circular.

11. The wireless power transfer system of claim 1, wherein at least one electrode of at least one of the transmit and receive electrode sets is rectangular.

12. The wireless power transfer system of claim 1, wherein at least one electrode of at least one of the transmit and receive electrode sets is a disc.

13. The wireless power transfer system of claim 1, wherein at least one electrode of at least one of the transmit and receive electrode sets is a ring.

14. The wireless power transfer system of claim 1, wherein at least one electrode of one of the transmit and receive electrode sets is a plate.

15. The wireless power transfer system of claim 1, wherein the transmit electrode set is axially offset from the receive electrode set.

16. The wireless power transfer system of claim 1, wherein the electrodes of the transmitter and the electrodes of the receiver are concentric.

17. The wireless power transfer system of claim 1, further comprising:

another receiver comprising another receive electrode set configured to extract the transferred power via resonant electric field coupling.

18. A helicopter comprising the wireless power transfer system of claim 1.

19. A wireless power transfer system comprising:

a transmitter comprising a transmit electrode set configured to transfer power via resonant electric field coupling; and

a receiver comprising a receive electrode set configured to extract the transferred power via resonant electric field coupling,

wherein the electrodes of at least one of the transmit and receive electrode sets are concentric, and

wherein at least one electrode of at least one of the transmit and receive electrode sets is a frustum.

20. A wireless power transfer system comprising:

a transmitter comprising a transmit electrode set configured to transfer power via resonant electric field coupling; and

a receiver comprising a receive electrode set configured to extract the transferred power via resonant electric field coupling,

wherein the electrodes of at least one of the transmit and receive electrode sets are concentric,

wherein the transmit electrode set comprises a tube and a rod, and

wherein the receive electrode set comprises at least two tubes.

21. A wireless power transfer system comprising:

a transmitter comprising a transmit electrode set configured to transfer power via resonant electric field coupling;

a receiver comprising a receive electrode set configured to extract the transferred power via resonant electric field coupling; and

an axle circumscribed by the transmit electrode set and the receive electrode set,

wherein the electrodes of at least one of the transmit and receive electrode sets are concentric.