CLAIMS

1. A power transfer system comprising:

a first coil coupled to a power source;

a second coil coupled to a load; and

a field-focusing element comprising two open ends, disposed between the first coil and the second coil and comprising a dielectric material, wherein the dielectric material comprises $Ca_{1-x-y}Ba_xSr_yTi_{1-z}Cr_zO_{3-\delta}N_p$,

wherein $0<x<1$; $0.4\leqq y<1$; $0\leqq z\leqq 0.01$; $0\leqq\delta\leqq 1$; and $0\leqq p\leqq 1$; and wherein the field-focusing element is configured to develop a standing wave current distribution and focus the magnetic field onto the second coil.

2. The system of claim 1, wherein $0.9\leqq x+y<1$.

3. The system of claim 2, wherein $0.3\leqq x$, and $x+y=1$.

4. The system of claim 1, wherein density of the dielectric material is greater than about 96% of the theoretical density.

5. The system of claim 1, wherein the dielectric material is a polycrystalline material comprising grains and grain boundaries and wherein the dielectric material further comprises a metallic bismuth phase disposed at the grain boundaries.

6. The system of claim 1, wherein $z>0$, and δ and p are both equal to 0.

7. The system of claim 1, wherein $z=0$, and δ and p are both greater than 0.

8. The system of claim 1, wherein z, δ, and p are all greater than zero.

9. The system of claim 1, wherein the dielectric material comprises $Ba_{0.3}Sr_{0.7}Cr_{0.005}Ti_{0.995}O_{2.8}N_{0.13}$.

10. The system of claim 1, wherein the dielectric material further comprises fluorine in an amount less than about 1 atomic percent.

11. The system of the claim 1, wherein the first coil and the second coil are spaced apart from the field-focusing element.

12. A power transfer system comprising:

a first coil coupled to a power source;

a second coil coupled to a load; and

a field-focusing element disposed between the first coil and the second coil and comprising a dielectric material, wherein the dielectric material comprises $Ca_{1-x-y}Ba_xSr_yTi_{1-z}Cr_zO_{3-\delta}N_p$,

wherein $0<x<1$, $0.4 \leqq y<1$; $0 \leqq z \leqq 0.01$; $0<\delta \leqq 0.5$; and $0<p \leqq 0.4$.

13. The power transfer system of claim 1, wherein the field-focusing element comprises a plurality of resonators arranged in an array, wherein the plurality of resonators is configured to interfere constructively when excited by different phases.

14. The system of claim 12, wherein the dielectric material further comprises fluorine in an amount less than about 1 atomic percent.

15. The system of claim 12, wherein $0.9 \leqq x+y \leqq 1$.

16. The system of claim 15, wherein $0.3 \leqq x$, and $x+y=1$.

17. The system of claim 12, wherein $z=0$.

18. The system of claim 12, wherein the dielectric material comprises $Ba_{0.3}Sr_{0.7}Cr_{0.005}Ti_{0.995}O_{2.8}N_{0.13}$.

19. The system of claim 12, wherein the dielectric material is a polycrystalline material comprising grains and grain boundaries and wherein the dielectric material further comprises a phase comprising bismuth disposed at the grain boundaries.

20. The system of the claim 12, wherein the first coil and the second coil are spaced apart from the field-focusing element.

21. A power transfer system comprising:

a first coil coupled to a power source;

a second coil coupled to a load; and

a field-focusing element disposed between the first coil and the second coil, and comprising a dielectric material, wherein the dielectric material comprises $Ba_{0.3}Sr_{0.7}Cr_{0.002}Ti_{0.998}O_3$.

22. The system of claim 21, wherein the dielectric material is a polycrystalline material comprising grains and grain boundaries and wherein the dielectric material further comprises a metallic bismuth phase disposed at the grain boundaries.