## CLAIMS

1. An apparatus, comprising:

a planar composite structure (PCS) comprising at least one dielectric layer and a conductive pattern on a surface of the at least one dielectric layer, the conductive pattern comprising:

at least first and second conductive traces, each extending radially from an inner radius to an outer radius and disposed angularly on the surface; and

a first interconnect having a first portion connected to the first conductive trace at the outer radius and a second portion connected to the second conductive trace at the outer radius;

wherein the first interconnect is bounded by an inner edge and an outer edge, and has a starting region, a transition region, and an ending region, the starting region having a first radiused inner edge section extending from the first conductive trace to the transition region; and

wherein at least a portion of the first radiused inner edge section has a curvature that varies continuously as a function of arc length.

2. The apparatus of claim 1, wherein the curvature of the first radiused inner edge section is characterized at least in part by the Corner Equation

$$r(\theta) = r_d + (r_s - r_d)e^{-(\theta-\theta_s)/\alpha}$$

for a corner starting at $\theta_s$ and $r_s$ and evaluated for $\theta > \theta_s$, or the equivalent reflected version with

$$r(\theta) = r_d + (r_s - r_d)e^{-(\theta_s-\theta)/\alpha}$$

for a corner evaluated with $\theta < \theta_s$ and ending at $\theta_s$ and $r_s$.

3. The apparatus of claim 2, wherein an angular separation between the first conductive trace and an adjacent conductive trace that also extends radially from the inner radius to the outer radius is $\delta$ radians, and $\alpha$ ranges between $0.06\delta$ and $0.2\delta$ radians.

4. The apparatus of claim 1, wherein:

the ending region has a second radiused inner edge section extending from the transition region to the second conductive trace; and

at least a portion of the second radiused inner edge section has a curvature that varies continuously as a function of arc length.

5. The apparatus of claim 4, wherein the curvature of the first radiused inner edge section and the second radiused inner edge section are each characterized at least in part by the Corner Equation

$$r(\theta) = r_d + (r_s - r_d)e^{-(\theta-\theta_s)/\alpha}$$

for a corner starting at $\theta_s$ and $r_s$ and evaluated for $\theta > \theta_s$, or the equivalent reflected version with

$$r(\theta) = r_d + (r_s - r_d)e^{-(\theta_s-\theta)/\alpha}$$

for a corner evaluated with $\theta < \theta_s$ and ending at $\theta_s$ and $r_s$.

6. The apparatus of claim 5, wherein the Corner Equation for an entirety of the inner edge of the first interconnect is characterized by the equation

$$r(\theta) = r_{s1} + (r_d - r_{s1})\left(1 - e^{-\frac{\theta-\theta_1}{\alpha}}\right) + (r_{s2} - r_d)\left(e^{-\frac{\theta_2-\theta}{\alpha}}\right)$$

where $r_{s1}$, $\theta_1$ is the starting point of the structure at the initiating trace, $r_{s2}$, $\theta_2$ is the ending point of the structure, $\alpha$ is the parameter of the corners, and $r_d$ is the radius at which the structure extends primarily in the angular direction.

7. The apparatus of claim 1, wherein:

the starting region has a first radiused outer edge section extending from the first conductive trace to the transition region, and a second radiused outer edge section extending from the transition region to the second conductive trace;

at least a portion of the first radiused outer edge section has a curvature that varies continuously as a function of arc length; and

at least a portion of the second radiused outer edge section has a curvature that varies continuously as a function of arc length.

8. The apparatus of claim 7, wherein the curvature of the first radiused outer edge section and the curvature of the second radiused outer edge section are each characterized at least in part by the Corner Equation

$$r(\theta) = r_d + (r_s - r_d)e^{-(\theta-\theta_s)/\alpha}$$

for a corner starting at $\theta_s$ and $r_s$ and evaluated for $\theta > \theta_s$, or the equivalent reflected version with

$$r(\theta) = r_d + (r_s - r_d)e^{-(\theta_s-\theta)/\alpha}$$

for a corner evaluated with $\theta < \theta_s$ and ending at $\theta_s$ and $r_s$.

9. The apparatus of claim 1, wherein the PCS has multiple layers, and further including:

connecting structures for interconnecting portions of conductive patterns on different layers.

10. The apparatus of claim 1, wherein the apparatus comprises a stator for an axial flux motor or generator.

11. An apparatus, comprising:

a planar composite structure (PCS) comprising at least one dielectric layer and a conductive pattern on a surface of the at least one dielectric layer, the conductive pattern comprising:

at least first and second conductive traces, each extending radially from an inner radius to an outer radius and disposed angularly on the surface; and

a first interconnect having a first portion connected to the first conductive trace at the outer radius and a second portion connected to the second conductive trace at the outer radius;

wherein the first interconnect is bounded by an inner edge and an outer edge, and has a starting region, a transition region, and an ending region, the starting region having a first radiused inner edge section extending from the first conductive trace at the outer radius to the transition region, and a second radiused inner edge section extending from the transition region to the second conductive trace at the outer radius; and

wherein at least the first radiused inner edge section and the second radiused inner edge section are each characterized by a slope $dr/d\theta$ which is a linear function of $r(\theta)$ from the first conductive trace to the transition region and where the slope $dr/d\theta$ is a different linear function from the transition region to the second conductive trace.

12. The apparatus of claim 11, wherein the PCS has multiple layers, and further including:

connecting structures for interconnecting portions of conductive patterns on different layers.

13. The apparatus of claim 11, wherein the apparatus comprises a stator for an axial flux motor or generator.

14. An apparatus, comprising:

a planar composite structure (PCS) comprising at least one dielectric layer and a conductive pattern on a surface of the at least one dielectric layer, the conductive pattern comprising:

at least first and second conductive traces, each extending radially from an inner radius to an outer radius and disposed angularly on the surface; and

a first interconnect having a first portion connected to the first conductive trace at the outer radius and a second portion connected to the second conductive trace at the outer radius;

wherein the first interconnect is bounded by an inner edge and an outer edge, and has a starting region, a transition region, and an ending region, the starting region extending from the first conductive trace at the outer radius to the transition region, and the ending region extending from the transition region to the second conductive trace at the outer radius; and

wherein at any point between the inner and outer edge, a smallest current density magnitude under direct current excitation is not less than 50% of a largest current density magnitude evaluated along a shortest line between the inner and outer edge passing through that point.

15. The apparatus of claim 14, wherein the PCS has multiple layers, and further including:

connecting structures for interconnecting portions of conductive patterns on different layers.

16. The apparatus of claim 14, wherein the apparatus comprises a stator for an axial flux motor or generator.

17. An apparatus, comprising:

a planar composite structure (PCS) comprising at least one dielectric layer and a conductive pattern on a surface of the at least one dielectric layer, the conductive pattern comprising:

at least first and second conductive traces, each extending radially from an inner radius to an outer radius and disposed angularly on the surface; and

a first interconnect having a first portion connected to the first conductive trace at the outer radius and a second portion connected to the second conductive trace at the outer radius;

wherein the first interconnect is bounded by an inner edge and an outer edge, and has a starting region, a transition region, and an ending region, the starting region having first radiused inner and outer edge sections extending from the first conductive trace at the outer radius to the transition region, and second radiused inner and outer edge sections extending from the transition region to the second conductive trace at the outer radius; and

wherein at least a respective slope of the first radiused inner edge section and outer edge section and the second radiused inner edge section and outer edge section are each characterized by a monotonically changing value of slope as a function of a rotational angle from the first conductive trace to the second conductive trace.

18. The apparatus of claim 17, wherein the PCS has multiple layers, and further including:

connecting structures for interconnecting portions of conductive patterns on different

layers.

19. The apparatus of claim 17, wherein the apparatus comprises a stator for an axial flux motor or generator.