WHAT IS CLAIMED IS:

1. A plasma confinement system, comprising

an enclosure;

one or more internal magnetic coils suspended within the enclosure in a plasma region; and

one or more supports configured to support the one or more internal magnetic coils suspended within the enclosure, wherein each support of the one or more supports comprises:

a first end coupled to an interior portion of the enclosure;

a second end opposite the first end, the second end coupled to the one or more internal magnetic coils disposed within the plasma region; and

electrical conducting material disposed between the first end and the second end and comprises a coil of electrical conducting material having a plurality of windings,

wherein the electrical conducting material is configured to, when supplied with one or more electrical currents, generate a magnetic field having a magnetic field gradient that varies along the support from the first end to the second end.

2. The plasma confinement system of Claim 1, wherein the electrical conducting material comprises one or more first portions of electrical conducting material and one or more second portions of electrical conducting material, wherein the electrical conducting material is configured to conduct current in a first direction in the one or more first portions and in a

second direction opposite the first direction in the one or more second portions.

3. The plasma confinement system of Claim 2, wherein the distance between the one or more first portion and the one or more second portion vary along the support between the first end and the second end.

4. The plasma confinement system of Claim 1, wherein the plurality of windings define more than one cross-sectional area.

5. The plasma confinement system of Claim 1, wherein each of the one or more supports defines an elongated hole that has an axial direction matching a direction of plasma flow within the plasma region.

6. A support for a plasma confinement system, the support comprising:

a first end couplable to an interior portion of an enclosure of the plasma confinement system;

a second end opposite the first end, the second end couplable to one or more internal magnetic coils disposed within a plasma region;

electrical conducting material disposed between the first end of the support and the second end of the support and comprises a coil of electrical conducting material having a plurality of windings,

wherein the electrical conducting material is configured to, when supplied with one or more electrical currents, generate a magnetic field having a magnetic field gradient that varies along the support from the first end to the second end.

7. The support of Claim 6, wherein the electrical conducting material comprises one or more first portions of

electrical conducting material and one or more second portions of electrical conducting material, wherein the electrical conducting material is configured to conduct current in a first direction in the one or more first portions and in a second direction opposite the first direction in the one or more second portions.

8. The support of Claim 7, wherein the distance between the one or more first portion and the one or more second portion vary along the support between the first end and the second end.

9. The support of Claim 6, wherein the plurality of windings define single cross-sectional area.

10. The support of Claim 6, wherein the plurality of windings define more than one cross-sectional area.

11. The support of Claim 6, further defining an elongated hole that has an axial direction matching a direction of plasma flow within the plasma region.

12. The support of Claim 6, wherein the support comprises a cross-sectional shape of an ellipsoid that is thinner in a direction orthogonal to the magnetic field.

13. A method, comprising,

disposing one or more internal magnetic coils suspended within a plasma region of an enclosure;

using one or more supports to support the one or more internal magnetic coils suspended within the enclosure, wherein the one or more supports are disposed at least partially within the plasma region;

generating a magnetic field along each of the one or more supports, the magnetic field having a non-zero magnetic field

gradient along a length of the support to and from the supported internal magnetic coil, the magnetic field generated using a current supplied to electrical conducting material disposed within each of the one or more supports and the electrical conducting material comprises a coil of electrical conducting material having a plurality of windings.

14. The method of Claim 13, wherein using a current supplied to the electrical conducting material comprises:

flowing the current in a first direction towards the internal magnetic coil in one or more first portions of the electrical conducting material; and

flowing the current in a second direction away from the internal magnetic coil in one or more second portions of the electrical conducting material.

15. The method of Claim 14, wherein the distance between the one or more first portions and the one or more second portions vary along the length of the support.

16. The method of Claim 13, wherein the plurality of windings define more than one cross-sectional area.

17. The method of Claim 13, wherein the plurality of windings define single cross-sectional area.