CLAIMS:

1. A cable for carrying electrical current in a coil of a magnet, comprising:

a stack of tape assemblies, each tape assembly having a length and a width, such that the length is much larger than the width and each tape assembly comprises an HTS layer of anisotropic high temperature superconductor, HTS material, wherein a c-axis of the HTS layer is at a non-zero angle to a vector perpendicular to the plane of the HTS layer;

wherein the tape assemblies are stacked as a series of pairs, each pair comprising first and second HTS tape assemblies and a copper layer therebetween;

wherein the tape assemblies in each pair are arranged such that the c-axis of the HTS layer of the first HTS tape assembly of each pair have reflective symmetry to the c-axis of the HTS layer of the second HTS tape assembly of each pair about a plane which is parallel to and equidistant from each HTS layer.

2. A cable according to claim 1, wherein the HTS material is one of:

ReBCO; and

BSCCO.

3. A cable according to claim 1 or 2, wherein each HTS tape assembly comprises a substrate.

4. A cable according to claim 3, wherein each pair is arranged such that the HTS layers of the first and second HTS tape assemblies are arranged between the substrates of the first and second HTS tape assemblies.

5. A cable according to claim 3, wherein each pair is arranged such that the substrates of the first and second HTS tape assemblies are arranged between the HTS layers of the first and second HTS tape assemblies.

6. A cable according to claim 3, wherein each pair is arranged such that one HTS layer is arranged between the substrates of the first and second HTS tape assemblies, and the other HTS layer is arranged outside the substrates of the first and second HTS tape assemblies.

7. A cable according to claim 1 or 2, wherein each HTS tape assembly comprises exfoliated HTS tape.

8. A cable according to any preceding claim, wherein the thickness of the copper layer is between 10 microns and 400 microns.

9. A method of manufacturing a cable for carrying electric current in a coil of a magnet, the method comprising:

providing first and second HTS tape assemblies, each HTS tape assembly comprising a high-strength metal substrate layer, and an HTS layer of anisotropic high temperature superconductor, HTS, material, wherein a c-axis of the HTS layer is at a non-zero angle to a vector perpendicular to the plane of the HTS layer;

applying the first HTS tape assembly to a copper layer;

applying the second HTS tape assembly to the copper layer, such that the HTS layer of the first HTS tape assembly and the HTS layer of the second HTS tape assembly are parallel and separated by the copper layer, and such that a c-axis of the HTS layer of the first HTS tape assembly has reflective symmetry to the c-axis of the HTS layer of the second HTS tape assembly about a plane which is parallel to and equidistant from each HTS layer.

10. A method according to claim 9, wherein each HTS tape assembly comprises a substrate layer.

11. A method according to claim 10, wherein the first and second HTS tape assemblies are applied to the copper layer such that the respective HTS layer is between the respective substrate layer and the copper layer.

12. A method according to claim 10, wherein the first and second HTS tape assemblies are applied to the copper layer such that the respective substrate layer is between the respective HTS layer and the copper layer.

13. A method according to claim 10, wherein the first and second HTS tape assemblies are applied to the copper layer such that the HTS layer of the first HTS tape assembly is between the substrate layer of the first HTS tape assembly and the copper layer, and the substrate layer of the second HTS tape assembly is between the HTS layer of the second HTS tape assembly and the copper layer.

14. A method according to claim 9, wherein each HTS tape assembly comprises exfoliated HTS tape.

15. A method according to any of claims 9 to 14, and comprising partially transferring a master HTS tape assembly from a first reel to a second reel, separating the portion of the master HTS tape assembly on the first reel from the portion of the master HTS tape assembly on the second reel, and applying the first HTS tape assembly from the first reel and the second HTS tape assembly from the second reel.

16. A method according to any of claims 9 to 14, wherein the first HTS tape assembly is applied in the opposite direction along the copper layer to the direction in which the second HTS tape assembly is applied.

17. A method according to any of claims 9 to 14, wherein the first and second HTS tape assemblies are formed by folding a master HTS tape assembly about an axis in the plane of the HTS layer and perpendicular to the length of the master HTS tape assembly, and removing a region of the master HTS tape assembly containing the fold.