CLAIMS

1. A cryopump comprising:

a pump inlet;

a two stage refrigerator;

a first stage array thermally coupled to a first stage of said two stage refrigerator; and

a cryopanel structure coupled to a second stage of said two stage refrigerator and comprising a plurality of cryopanels; wherein

said plurality of cryopanels each comprise two sides, said two sides comprising a coated side that is coated with an adsorbent material and a further side that is not coated with said adsorbent material;

said first stage array comprises a plurality of elements corresponding to said plurality of cryopanels;

said plurality of elements being configured to be mounted between said pump inlet and said plurality of cryopanels; wherein

each of said plurality of elements extends from a location between a corresponding cryopanel and said pump inlet towards a neighbouring cryopanel and slopes towards said inlet, such that each of said plurality of elements at least partially shields a coated side of said neighbouring cryopanel from direct impact of a gas molecule passing through said pump inlet.

2. A cryopump according to any preceding claim, wherein said cryopanel structure is configured and mounted such that a surface of said cryopanel structure that a molecule entering said cryopump is most likely to impact first is said further portion of said cryopanel structure surface.

3. A cryopump according to any preceding claim, wherein said first stage array and said cryopanel structure are configured such that there is no line of sight path between said pump inlet and said coated portions of said sides of said cryopanel.

4. A cryopump according to any preceding claim, wherein said plurality of cryopanels comprise a plurality of planar cryopanels, one side of said cryopanels comprising said coated side and the other side comprising said further side.

5. A cryopump according to any preceding claim, wherein said plurality of cryopanels comprise a plurality of coaxial cylindrical cryopanels of different diameters.

6. A cryopump according to claim 5, wherein an outer surface of said cylindrical cryopanels comprise said coated side and an inner surface comprise said further side.

7. A cryopump according to any preceding claim when dependent upon claim 5 or 6, wherein said plurality of elements of said first array comprise a plurality of coaxial frustoconical elements of different diameters.

8. A cryopump according to any preceding claim, wherein said adsorbent material is configured to adsorb type III gases such as while type III gases, such as hydrogen, helium and neon.

9. A cryopump according to any preceding claim, wherein said adsorbent material comprises a molecular sieve that coats said coated side.

10. A cryopump according to any preceding claim, wherein said adsorbent material comprises one of: charcoal, activated carbon, zeolite or a porous metal surface.