

WHAT IS CLAIMED

1. A radial flow chromatography column comprising:
a plurality of beads, with each bead comprising one or more pores therein, and
interstitial channels formed between the beads,
wherein each pore has a diameter of about 250 Å to about 5000 Å,
wherein at least about 80% of the plurality of beads have a diameter of about 200 μm
to about 500 μm and
wherein the beads have an average radius R of about 100 μm to about 250 μm.
2. The radial flow chromatography column of claim 1, wherein the bead is made of a
polymer, glass, alumina, silica, controlled pore glass (CPG), cellulose, encapsulated iron
particles, encapsulated CPG, or encapsulated silica.
3. The radial flow chromatography column of claim 2, wherein the bead is a polymer
bead.
4. The radial flow chromatography column of any of the preceding claims, wherein any
beads having $r < 0.414 R$ have been removed.
5. The radial flow chromatography column of any of the preceding claims, wherein any
beads having $r < 0.225 R$ have been removed.
6. The radial flow chromatography column of any of the preceding claims, wherein the
interstitial channels have: a tetrahedron site radius $r_{\text{tet}} = 0.225 R$, an octahedron site radius
 $r_{\text{oct}} = 0.414 R$, or both.
7. The radial flow chromatography column of any of the preceding claims, wherein the
interstitial channels have a narrowest channel radius $r_{\text{cha}} = 0.155 R$.

8. The radial flow chromatography column of any one of claims 1 through 3, wherein the beads are monodisperse.
9. A process for selecting beads for use in a radial flow chromatography column comprising: a) identifying a narrow desirable bead radius R range based on the components present in the feed stream; b) removing beads of a defined radius r , which are outside of the desirable bead range; and c) defining the percentage of bead radius R within the desirable bead range.
10. The process of claim 9, wherein the bead is made of a polymer, glass, alumina, metal or other other crystalline, semi-crystalline or amorphous material, silica, controlled pore glass (CPG), cellulose, encapsulated iron particles, encapsulated CPG or encapsulated silica.
11. The process of claim 9, wherein the bead is a polymer bead.
12. The process of any one of claims 9 through 11, wherein the beads of radius r are removed by wet or dry sieving, and/or elutriation.
13. The process of any one of claims 9 through 11, wherein beads having radius $r < 0.414 R$ are removed.
14. The process of claim 13, wherein beads having radius $r < 0.225 R$ are removed.
15. A process for purifying an unclarified feed stream using the radial flow chromatography column of claim 1 comprising the steps of:
 - a. packing the radial flow column with the beads;
 - b. processing a clarified feed stream containing a particle of interest to calibrate purification conditions;

- c. determining the binding of the particle of interest from the results of step b;
- d. processing an unclarified feed stream comprising the particle of interest.

16. The process of claim 15, wherein the particle of interest is a protein, virus, VLP, DNA, RNA, antigen, liposome, oligo- or polysaccharide, or any combination thereof.