CLAIMS:

1. A micro-structure deflector array including a plurality of multipole structures, each multipole structure comprising a plurality of pole electrodes, the array comprising:

a first group of multipole structures of the plurality of multipole structures, the first group of multipole structures having a first set of radial shifts from a central axis of the array, wherein each multipole structure of the first group comprises a same number of corresponding pole electrodes; and

a second group of multipole structures of the plurality of multipole structures, the second group of multipole structures having a second set of radial shifts from the central axis of the array, wherein each multipole structure of the second group comprises a same number of corresponding pole electrodes,

wherein a multipole structure of the first group comprises a greater number of pole electrodes than a multipole structure of the second group, and wherein each of the first group and the second group comprises one or more multipole structures.

2. The array of claim 1, wherein a lowest value of radial shift of the first set of radial shifts are higher than a highest value of radial shift of the second set of radial shifts.

3. The array of claim 1, wherein the plurality of multipole structures are configured to substantially simultaneously deflect a plurality of charged particle beams.

4. The array of claim 3, wherein the first group of multipole structures comprises:

a first sub-group of multipole structures that are electrically connected to, and driven by, a first driver, wherein radial shifts and orientation angles of the first sub-group of multipole structures are substantially equal.

5. The array of claim 4, wherein the second group of multipole structures comprises:

a second sub-group of multipole structures that are electrically connected to, and driven by, a second driver, wherein radial shifts and orientation angles of the second sub-group of multipole structures are substantially equal.

6. The array of claim 5, wherein a driver of the first and second drivers is configured to enable corresponding multipole structures to deflect the plurality of charged particle beams in a multi-beam apparatus, and wherein further the plurality of multipole

structures are configured as image-forming elements or pre-bending micro-deflectors in the multi-beam apparatus.

7. The array of claim 1, wherein a multipole structure of the first group has an inner diameter larger than a multipole structure of the second group.

8. The array of claim 3, wherein the first group and the second group are arranged in a first layer of the array, and wherein the array further comprises a second layer that comprises a third group of multipole structures having a third radial shift from the central axis of the array.

9. The array of claim 8, wherein the third radial shift is different than the first set of radial shifts or the second set of radial shifts.

10. The array of claim 8, wherein a number of pole electrodes of the third multipole structure is different than, or equal to, a number of pole electrodes of a multipole structure of the first group of multipole structures.

11. The array of claim 8, wherein one of the plurality of charged particle beams is deflected by a multipole structure of the first layer, and another one of the plurality of charged particle beams is deflected by a multipole structure of the second layer.

12. The array of claim 8, wherein one of the plurality of charged particle beams is deflected by a multipole structure of the first layer and a multipole structure of the second layer in series, and the multipole structure of the first layer and the multipole structure of the second layer are aligned to each other.

13. The array of claim 8, wherein:

a first beam of the plurality of charged particle beams is deflected by a multipole structure of the first layer and is not deflected by any multipole structure of the second layer,

a second beam of the plurality of charged particle beams is deflected by a multipole structure of the second layer and is not deflected by any multipole structure of the first layer and

a third beam of the plurality of charged particle beams is deflected by a multipole structure of the first layer and a multipole structure of the second layer in series.

14. A source conversion unit in a charged particle beam system, wherein the source conversion unit comprises a micro-structure deflector array including a plurality of multipole structures, each of the multipole structures comprising a plurality of pole electrodes, the array comprising:

a first group of multipole structures of the plurality of multipole structures, the first group of multipole structures having a first set of radial shifts from a central axis of the array, wherein each multipole structure of the first group comprises a same number of pole electrodes; and

a second group of multipole structures of the plurality of multipole structures, the second group of multipole structures having a second set of radial shifts from the central axis of the array, wherein each multipole structure of the second group comprises a same number of pole electrodes,

wherein the first set of radial shifts is different from the second set of radial shifts, wherein a multipole structure of the first group comprises a greater number of pole electrodes than a multipole structure of the second group, and wherein each of the first group and the second group comprises one or more multipole structures.

15. The source conversion unit of claim 14, wherein the first group and the second group are arranged in a first layer of the array, the array further comprising a second layer that comprises a third group of multipole structures having a third radial shift from the central axis of the array.