CLAIMS

1. A target for use in the measurement of misregistration between at least a first layer and a second layer formed on a wafer in the manufacture of functional semiconductor devices on the wafer, the functional semiconductor devices including functional device structures (FDSTs), the target comprising:

a plurality of measurement structures (MSTs), said plurality of MSTs being part of said first layer and said second layer; and

a plurality of device-like structures (DLSTs), said plurality of DLSTs being part of at least one of said first layer and said second layer,

said DLSTs sharing at least one characteristic with said FDSTs; and

said MSTs not sharing said at least one characteristic with said FDSTs,

wherein said target is formed within a die of said wafer, said die comprising said functional semiconductor devices; and

wherein said at least one characteristic includes at least one of:

a degree of magnitude of a typical smallest dimension;

a shape; and

a degree of magnitude of packing density.

2. The target according to claim 1, wherein said DLSTs are formed on both of said first layer and said second layer.

3. The target according to any of claims 1 – 2, wherein said DLSTs are formed between said MSTs.

4. The target according to any of claims 1 – 3, wherein a packing density of said DLSTs is greater than 0.5.

5. The target according to claim 1,

wherein said characteristic is said degree of magnitude of typical smallest dimension;

wherein a ratio of a typical smallest dimension of said MSTs to a typical smallest dimension of said FDSTs is at least 1.7; and

wherein a ratio of a typical smallest dimension of said DLSTs to said typical smallest dimension of said FDSTs is between 0.5 and 1.5.

6. The target according to claim 1,

wherein said characteristic is the degree of magnitude of packing density;

wherein said MSTs define measurement spaces (MSPs) formed therebetween, said FDSTs define functional device spaces (FDSPs) formed therebetween and said DLSTs define device-like spaces (DLSPs) therebetween;

wherein a ratio of a typical smallest dimension of said MSPs to a typical smallest dimension of said FDSPs is at least 1.7; and

wherein a ratio of a typical smallest dimension of said DLSPs to said typical smallest dimension of said FDSPs is between 0.5 and 1.5.

7. The target according to claim 6, wherein said DLSTs are rotated relative to said MSTs in a plane generally parallel to a plane defined by said first layer.

8. The target according to claim 6, wherein each of said MSTs comprises:

a plurality of segments; and

a plurality of corresponding segment spaces.

9. The target according to claim 6, wherein a ratio of a typical smallest dimension of said segments to a typical smallest dimension of said DLSTs is at least 1.1.

10. The target according to claim 8 or claim 9, wherein a ratio of a typical smallest dimension of spaces between said segments to a typical smallest dimension of said DLSPs is at least 1.1.

11. The target according to any of claims 8 – 10, wherein said DLSTs are rotated relative to said segments in a plane generally parallel to a plane defined by said first layer.

12. The target according to any of claims 1 – 11, wherein said MSTs are formed as part of at least one of:

an advanced imaging metrology in-die (AIMid) target;

an advanced imaging metrology (AIM) target;

a Box-in-Box (BiB) target;

a blossom target;

a Moiré target;

a scatterometry target;

an electron beam target;

a hybrid scatterometry-electron beam target;

a hybrid imaging-electron beam target; and

a target useful in the measurement of misregistration between three or more layers formed on said wafer.

13. A method of measuring misregistration between at least one first layer and at least one second layer formed on a wafer in the manufacture of functional semiconductor devices, the functional semiconductor devices including functional device structures (FDSTs), the method comprising:

providing said wafer on which is formed a target comprising:

a plurality of measurement structures (MSTs), said plurality of MSTs being part of said first layer and said second layer; and

a plurality of device-like structures (DLSTs),

wherein said plurality of DLSTs is part of at least one of said first layer and said second layer;

wherein said DLSTs share at least one characteristic with said FDSTs; and

wherein said MSTs do not share said characteristic with said FDSTs;

measuring said target with a misregistration metrology tool, thereby generating an output signal; and

analyzing said output signal, thereby generating a misregistration value between said layers of said target,

wherein said target is formed within a die of said wafer, said die comprising said functional semiconductor devices; and

wherein said at least one characteristic includes at least one of:

a degree of magnitude of a typical smallest dimension;

a shape; and

a degree of magnitude of packing density.

14. The method according to claim 13, wherein said MSTs are resolvable by said misregistration metrology tool.

15. The method according to claim 13 or claim 14, wherein spaces between said MSTs are resolvable by said misregistration metrology tool.

16. The method according to any of claims 13 – 15, wherein said DLSTs are not resolvable by said misregistration metrology tool.

17. The method according to any of claims 13 – 16, wherein spaces between said DLSTs are not resolvable by said misregistration metrology tool.