

WHAT IS CLAIMED IS:

1. A metrology tool, comprising:
 - a magnet to generate a magnetic field;
 - a stage system to position a plurality of magnetic random-access memory (MRAM) dies on an MRAM wafer in the magnetic field, the stage system comprising a chuck on which to mount the MRAM wafer;
 - optics to provide a laser beam and direct the laser beam to be incident upon respective MRAM dies on the MRAM wafer with the respective MRAM dies positioned in the magnetic field, the laser beam having a polarization; and
 - a detector to receive the laser beam as reflected by the respective MRAM dies on the MRAM wafer and to measure rotation of the polarization of the reflected laser beam;wherein the metrology tool is configurable to provide each MRAM die on the MRAM wafer with a common orientation with respect to the polarization of the laser beam when the laser beam is incident on the MRAM die with the MRAM die positioned in the magnetic field.
2. The tool of claim 1, wherein:
 - the chuck has a rotational axis;
 - the stage system has a first translational axis and a second translational axis; and
 - the stage system is configured to translate the chuck along the first and second translational axes and rotate the chuck about the rotational axis to position each MRAM die on the MRAM wafer to have the common orientation with respect to the polarization of the laser beam.
3. The tool of claim 2, wherein the staging system further comprises:
 - a first translational stage, to which the chuck is coupled, to translate the chuck along the first translational axis;
 - a first motor to move the first translational stage along the first translational axis;
 - a second translation stage, to which the first translational stage is coupled, to translate the chuck and the first translational stage along the second translational axis;
 - a second motor to move the second translational stage along the second translational axis;and

- a third motor to rotate the chuck about the rotational axis.
4. The tool of claim 2, wherein the first and second translational axes are perpendicular.
 5. The tool of claim 1, wherein:
 - the magnet is configured to generate the magnetic field to be normal to the respective MRAM dies on the MRAM wafer when the respective MRAM dies are positioned in the magnetic field; and
 - the optics are configured to direct the laser beam to be normally incident upon the respective MRAM dies on the MRAM wafer when the respective MRAM dies are positioned in the magnetic field.
 6. The tool of claim 1, wherein:
 - the optics comprise a laser to generate the laser beam, a polarizer to polarize the laser beam with the polarization, and mirrors to steer the laser beam to be incident upon the respective MRAM dies on the MRAM wafer; and
 - the detector comprises an analyzer.
 7. The tool of claim 6, wherein:
 - the laser and polarizer are rotatable about their respective longitudinal axes to vary the polarization of the laser beam; and
 - the detector is rotatable in accordance with rotation of the laser and polarizer.
 8. The tool of claim 7, wherein:
 - the chuck has a rotational axis;
 - the stage system has a first translational axis; and
 - the stage system is configured to translate the chuck along the first axis and rotate the chuck about the rotational axis to position each MRAM die on the MRAM wafer to receive the laser beam.
 9. A method, comprising, in a metrology tool:
 - generating a magnetic field;
 - positioning a magnetic random-access memory (MRAM) wafer in the magnetic field, the MRAM wafer comprising a plurality of MRAM dies;

with the MRAM wafer positioned in the magnetic field, providing a laser beam to be incident upon the MRAM wafer, the laser beam having a polarization;

successively positioning respective MRAM dies on the MRAM wafer so that the laser beam is successively incident on the respective MRAM dies while the respective MRAM dies are positioned in the magnetic field, comprising orienting each of the respective MRAM dies with a common orientation with respect to the polarization of the laser beam when the laser beam is incident on the MRAM die; and

for each of the respective MRAM dies, measuring rotation of the polarization of the laser beam as reflected by the MRAM die.

10. The method of claim 9, wherein successively positioning the respective MRAM dies comprises successively positioning each MRAM die on the MRAM wafer so that the laser beam is successively incident on each MRAM die while the MRAM die is positioned in the magnetic field and oriented with a common orientation with respect to the polarization of the laser beam.

11. The method of claim 9, further comprising mounting the MRAM wafer on a chuck, wherein successively positioning the respective MRAM dies comprises:

rotating the chuck; and

translating the chuck along a first translational axis and along a second translational axis.

12. The method of claim 11, wherein the first and second translational axes are perpendicular.

13. The method of claim 9, wherein:

providing the laser beam comprises directing the laser beam to be normally incident on the respective MRAM dies; and

generating the magnetic field comprises configuring the magnetic field to be normal to the respective MRAM dies.

14. The method of claim 9, wherein providing the laser beam comprises:

generating the laser beam using a laser; and

polarizing the laser beam to have the polarization, using a polarizer.

15. The method of claim 14, wherein the orienting comprises rotating the laser and the polarizer about their respective longitudinal axes to vary the polarization.
16. The method of claim 15, wherein successively positioning the respective MRAM dies comprises:
- rotating the chuck; and
 - translating the chuck along a single translational axis.
17. The method of claim 15, wherein:
- the measuring is performed using a detector; and
 - the method further comprises rotating the detector in accordance with the rotating of the laser and the polarizer.
18. A metrology tool, comprising:
- a magnet to generate a magnetic field;
 - a stage system to position a plurality of magnetic random-access memory (MRAM) dies on an MRAM wafer in the magnetic field, the stage system comprising a chuck on which to mount the MRAM wafer;
 - optics to provide a laser beam and direct the laser beam to be incident upon respective MRAM dies on the MRAM wafer with the respective MRAM dies positioned in the magnetic field, the laser beam having a polarization; and
 - a detector to receive the laser beam as reflected by the respective MRAM dies on the MRAM wafer and to measure rotation of the polarization of the reflected laser beam;
 - one or more processors; and
 - memory storing one or more programs for execution by the one or more processors, the one or more programs comprising instructions for providing each MRAM die on the MRAM wafer with a common orientation with respect to the polarization of the laser beam when the laser beam is incident on the MRAM die with the MRAM die positioned in the magnetic field.