Breakout Session 2: Unique Metrology and Quality Systems for Specific R2R Applications

VISION AND GOALS

- Metrology for R2R operations that can be integrated into controls systems that can optimize the entire line operation.
- Link physics based models to sensors to processes and defect, so that the cause of the defect can be properly diagnosed and mitigated.
- Enable / adapt applications of existing QC technologies to different environments / materials.
- Support 6σ philosophy.

CHALLENGES

- Scale-up challenges. E.g., capital expenditure, going from lab testing to in-line production, increase yield on a new R2R process.
- Lack of insight between the physics behind the defect and the in-line process.
- Lack of new measurement technologies (e.g., lack of areal measurement relevant to R2R). Many existing measurement tools are too slow or not amenable to R2R.

Breakout Session 2: Unique Metrology and Quality Systems for Specific R2R Applications

R&D NEEDS

- New sensor technologies. Higher resolution, lower implementation cost, in-line functionality.
- System level study that looks at the overall picture, connecting material science and process science.
- Higher level physics based modeling / simulation, e.g., physics of the film deposition & identification of killer defects.

R&D FOCUS AREA

- Quality Control Techniques.
  - Deliver QC needs for R2R materials.
  - Areal & linear point measurements.
- System Level Studies
  - Manufacturing process control.
  - System integration of process science, materials science, and metrology.