Super-resolution Optical Inspection for Semiconductor Defect by using Standing Wave Illumination Shift

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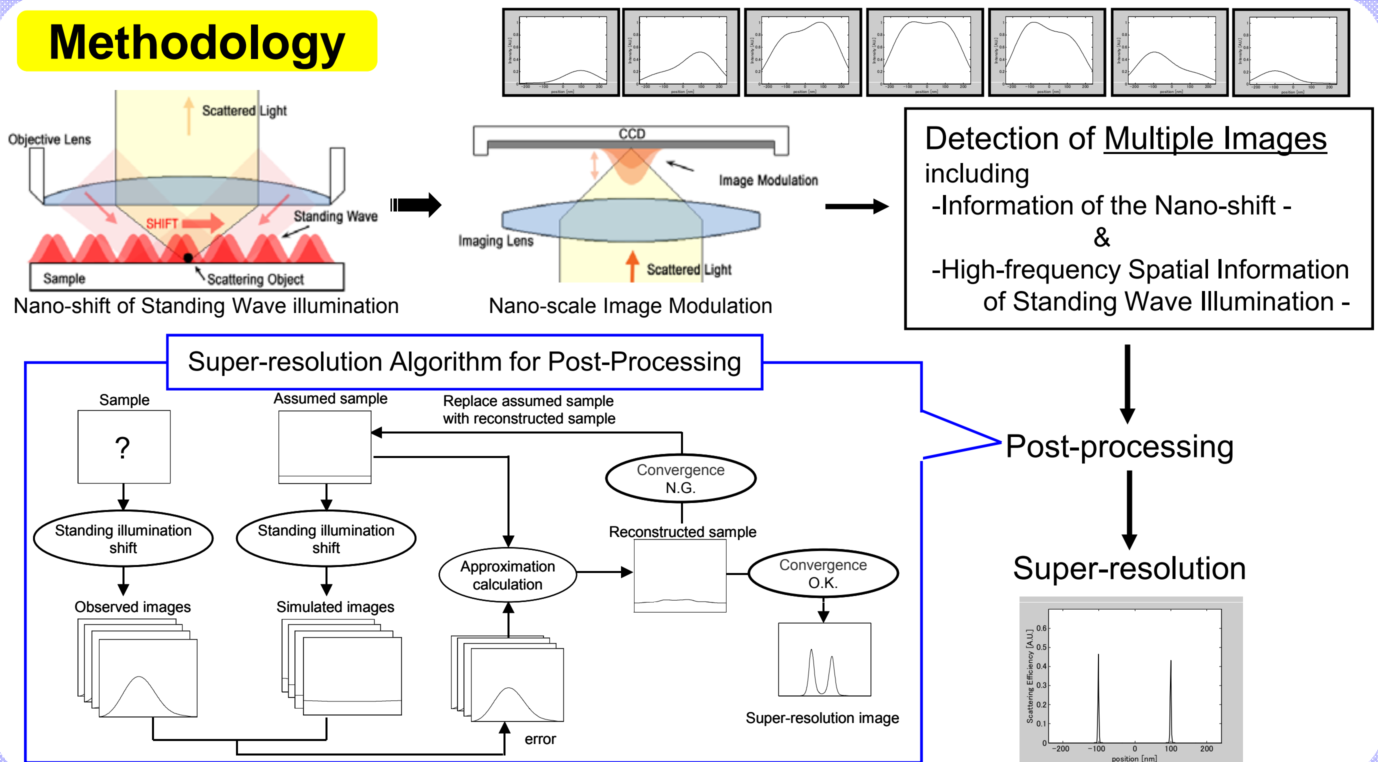
Objective

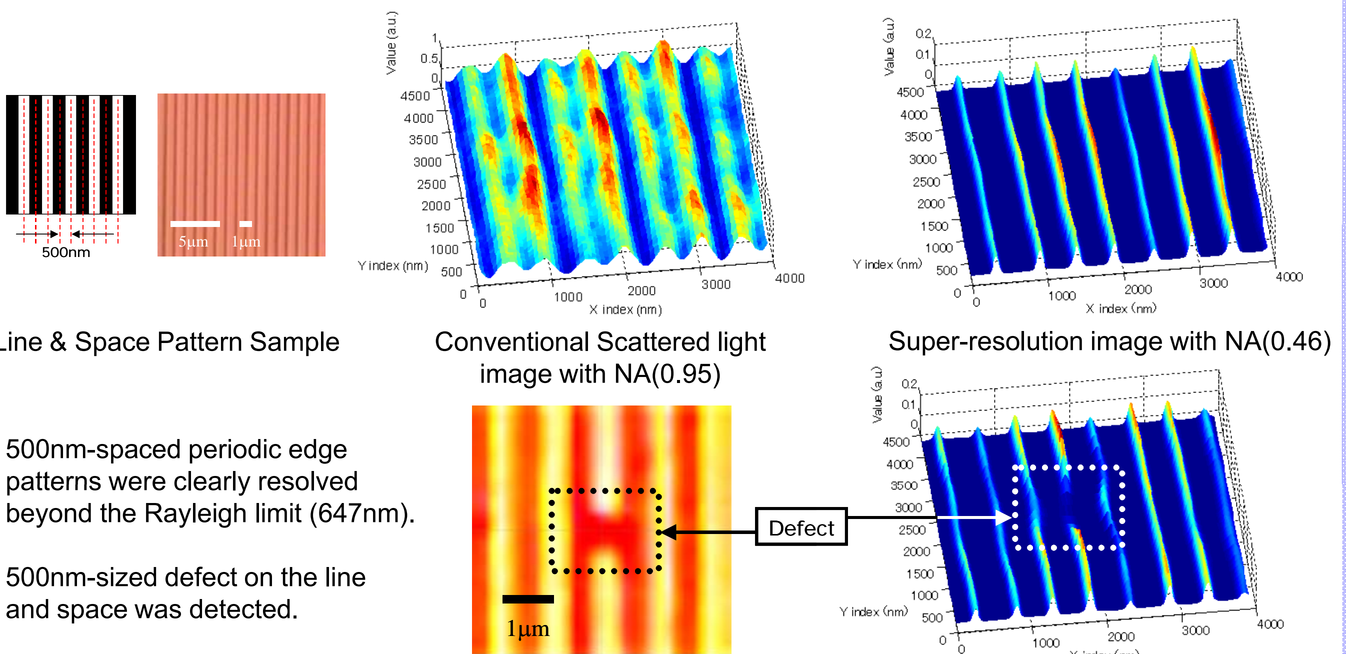
Development of the inspection system with advantages of optical method and with high-resolution beyond the Rayleigh limit

- High Resolution: less 100nm -
- High Sensitivity for Defect detection -
- High Throughput -
- Non-destructive inspection -

Methodology



Experiment to resolve Line & Space and Defect Detection



500nm-spaced periodic edge patterns were clearly resolved beyond the Rayleigh limit (647nm).

500nm-sized defect on the line and space was detected.

Ref.) S.Usuki, et. al.,Development of super-resolution optical inspection system for semiconductor defects using standing wave illumination shift, Proceedings of SPIE, Vol. 6375, 2006