

**HIGH RESOLUTION AND LOW RUN-OUT ERRORS IN
DISPLACEMENT MEASURING GRATING INTERFEROMETER
USING NATURAL INTERFERENCE ZONE**

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In-plane displacement with high accuracy can be measured with a grating interferometer generating stable detector width compensated interference fringe pattern in natural overlap region. This is realized using a set of matched pitch gratings with array detector and Spatial Phase Measurement techniques has been used for retrieving in-plane displacement. This system shows good direct interpolation to realize comparable resolution and better tolerances in terms of run out error compared to most of the grating interferometers available in market or reported. It gives not only these advantages but also provide an opportunity to monitor and correct run out errors during the measurement process if on board image processing techniques are used besides data acquisition on a high speed personal computer.

Key Words : *Spatial Phase Measurement (SPM), Detector Width Compensation (DWC), Run-Out Error.*