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Development of measurement system for gauge block interferometer

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We developed a measurement system for collecting and analyzing the fringe pattern images from a gauge block interferometer. The system was based on raspberry pi which is an open source system with python programming and opencv image manipulate library. The images were recorded by the raspberry pi camera with 8 mega pixel capacity. The noise of images was suppressed for the best result in analyses. The low noise images were processed to find the edge of fringe patterns using the contour technique for the phase shift analyses. We tested our system with the phase shift pattern between a gauge block and a reference plate. The phase shift patterns were measured by a Michelson type of interferometer using the He-Ne laser with the temperature controlled at about 20 °C. The results of the measurement will be presented and discussed.

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