

REAL-TIME MULTI-POINT DIFFRACTION-BASED IMAGING SYSTEM FOR STRAIN MEASUREMENT

Abstract

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This invention relates to a system and a method for measuring testing strain resistance of a specimen on a strain measurement system having an image capturing device, a spatial light modulator, a first light source, a second light source and a beam switching controller. The system receives parameters from an input from a user and generates a lenslet pattern to be transmitted to the spatial light modulator. The system then transmits a frequency and switching sequence to the beam switching controller to alternate the first and second light sources and activate the image capturing device to capture image. Subsequently, the system receives a U image captured by the image capturing device caused by a beam of the first light source and a V image captured by the image capturing device caused by a beam of the second light source. Based on the U and V images received, the system optimises the image capturing device and subsequently displays the V and U images to a display. Concurrently, the system transmits a signal to the beam switching controller to temporary stop activating the first and second light sources and the image capturing device and waits for a subsequent input to begin stress measurement. In response to receiving the subsequent input, the system transmits a signal to the beam switching controller to continue alternating the first and second light sources and activating the image capturing device to capture image. The system receives a subsequent U and V images and displays the V and U images to a display in response to the image capturing device.

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Figure 1 to accompany the abstract