

IMPROVED SENSITIVITY FROM MULTIPLE IMAGES IN RESIDUAL STRESS MEASUREMENT BY ESPI HOLE-DRILLING

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The hole drilling method for residual stress measurement is a common technique, typically utilizing a strain gage to quantify the in-plane strains that are released as a result of drilling a hole. Electronic speckle pattern interferometry has also been used to measure deformation around the hole, and gains some out-of-plane component of deformation. Results can be calculated based on a single set of images, with a sensitivity vector defined by the bisector of the incoming laser light and the reflected light that is imaged. In this paper, we will investigate the sensitivity improvements that result from incorporating more than one sensitivity vector, by using two imaging cameras.