

Abstract Submitted  
for the SES08 Meeting of  
The American Physical Society

**Effect of Preloading Condition on Fringe Pattern in Electronic Speckle Pattern Interferometry** TOMOHIRO SASAKI, SANICHIRO YOSHIDA, JOHN GAFFNEY, Southeastern Louisiana University — Electronic speckle pattern interferometry(ESPI) has received considerable attention as a measurement method capable of whole-field, dynamic analysis. In this study, an attempt is made to diagnose the degree of deformation based on the fringe patterns formed with an in-plane ESPI setup. We focus on the change in fringe pattern that preloaded specimens show when they are reloaded after released from the initial tensile load. If the degree of deformation can be identified from a specific change in the fringe pattern, this technique can be potentially used to predict material's remaining life. In this report, we discuss difference in the fringe pattern observed in Al-Mg alloy specimens preloaded to an under- and over-yield stress levels. In addition, difference in the fringe pattern based on the difference in Mg content is discussed.

Sanichiro Yoshida  
Southeastern Louisiana University

Date submitted: 19 Aug 2008

Electronic form version 1.4