## Speckle InterferometryII









Step 4

Step 5

Step 6



Step 7

Step 8

Step 9



Step 1

Step 2

Step 3



Step 7

Step 8

Step 9

## Laboratory Experimental Procedure:

In the previous experiment we carried out the calibration experiment for speckle interferometry. This week's experiment is to measure the displacement distribution around a crack tip in a polystyrene specimen.

(1) Experimental step 1: Make a crack in a polystyrene specimen as shown in the first figure, to get about 3-4 mm crack length.

(2) Experimental step 2: Load the specimen incrementally in six to nine steps to get the crack opening displacements as shown in the second set of figures.

(3) Process the total displacement at different steps as shown in the third set of figures.

(4) Plot the crack tip opening displacement as a function of load.

(5) Discuss how you can use the experimental data to assess the fracture properties of the material.

P.S. Measure the displacement distribution in the vertical direction as well as shown below.



Step 1

Step 2

Step 3

Report Due Date: April 29, 2004.