

Determination of Interface Notch SIFs by Digital Correlation Experiments

Shen-Haw Ju

Distinguished professor

Department of Civil Engineering,
National Cheng-Kung University, Tainan City, Taiwan, R.O.C.
Phone number: 886-6-2757575-63119
Fax number: 886-6-2358542
Email: juju@mail.ncku.edu.tw

Abstract

A least-squares method incorporating image-correlation experiments was developed to find the stress intensity factors (SIFs) of interface notches. First, complex displacement functions are deduced into a least-squares form, and then displacements from the image-correlation experiments are substituted into the least-squares formulation to find the SIFs for interface notches with anisotropic materials. Validations using the H-integral indicate that the experimental SIFs evaluated from the proposed method are acceptably accurate. The major advantage is that the experimental data near specimen boundaries, which often contain large errors, is not necessary in the current method.

Shen-Haw Ju

Distinguished professor

Department of Civil Engineering,

National Cheng-Kung University, Tainan City, Taiwan

Major in Structural Engineering

Ph.D. University of Wisconsin-Madison, Engineering Mechanics