Accepted Manuscript

Comparison of constraint analyses with global and local approaches under uniaxial and biaxial loadings

Guian Qian, Yupeng Cao, Markus Niffenegger, Yuh J. Chao, Wenwang Wu

PII: S0997-7538(17)30519-3

DOI: 10.1016/j.euromechsol.2017.12.006

Reference: EJMSOL 3529

To appear in: *European Journal of Mechanics / A Solids*

Received Date: 30 June 2017

Revised Date: 5 December 2017

Accepted Date: 17 December 2017

Please cite this article as: Qian, G., Cao, Y., Niffenegger, M., Chao, Y.J., Wu, W., Comparison of constraint analyses with global and local approaches under uniaxial and biaxial loadings, *European Journal of Mechanics / A Solids* (2018), doi: 10.1016/j.euromechsol.2017.12.006.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Comparison of constraint analyses with global and local approaches under uniaxial and biaxial loadings

Guian Qian[1,2], Yupeng Cao[3], Markus Niffenegger[1], Yuh J Chao[4], Wenwang Wu[5, 6]

[1]Laboratory for Nuclear Materials, Nuclear Energy and Safety Department, Paul Scherrer Institute, Villigen PSI, 5232, Switzerland

[2]State Key Laboratory for Nonlinear Mechanics (LNM), Institute of Mechanics, Chinese Academy of Sciences, Beijing 100080, China.

[3]Department of Component Research and Design, Shanghai Nuclear Engineering Research and Design Institute, Shanghai 200233, China

[4]Department of Mechanical Engineering, University of South Carolina, Columbia, SC 29208, USA

[5]Institute of Advanced Structure Technology, Beijing Institute of Technology, Beijing 100081, China

[6]Beijing Key Laboratory of Lightweight Multi-functional Composite Materials and Structures, Beijing 100081, China

Abstract: Fracture toughness is an important material property used to perform the integrity assessment of engineering components containing cracks. Due to the difference in crack tip constraint, specimens may show different fracture toughness. The constraint difference for cruciform specimen with shallow crack, compact tension (CT) specimen and three point bending specimen with shallow and deep cracks are investigated. Both linear elastic and elastic-plastic fracture mechanics are applied to study the constraint effect based on two-parameter fracture

[1] E-mail address: guian.qian@psi.ch, caoyupeng@snerdi.com.cn

Download English Version:

https://daneshyari.com/en/article/7170257

Download Persian Version:

https://daneshyari.com/article/7170257

Daneshyari.com