

STP 1508

Fatigue and Fracture Mechanics: 36th Volume

Table of Contents

SWEDLOW LECTURE

Analysis of Material Inhomogeneity in the European Round Robin Fracture Toughness Data Set—
J.A. Joyce, X. Gao

ELASTIC-PLASTIC FRACTURE MECHANICS

The Significance of a Crack Growth Law for a C(T) Fracture Specimen Undergoing Stable Crack Extension—
J.R. Donoso, K. Vasquez, J.D. Landes

Assessing the Loading Rate for a Fracture Toughness Test in the Ductile-to-Brittle Transition Region—
E. Lucon, M. Scibetta

Experimental Estimation of J-R Curves from Load-CMOD Record for SE(B) Specimens—*X.K. Zhu, B.N. Leis, J.A. Joyce*

On the Quantification of Constraint Effect along 3D Crack Front—*X. Wang*

RESIDUAL STRESS EFFECTS ON FATIGUE

Influence of Residual Stresses on Fretting Fatigue Life Prediction in Ti-6Al-4V—*P.J. Golden, S. Naboulsi*

Fatigue Response of Aluminum Aircraft Structure under Engineered Residual Stress Processing—
K. Langer, S. Vanhoogen, J. Hoover

Life Time Estimation Of Mechanically Surface-Treated Titanium Components—*H. Leitner, H.-P. Gänser, A. Javidi*

Fretting Fatigue Behavior of Shot-Peened Ti-6Al-4V and IN100—*S. Mall*

Prediction of the fatigue limit of prestrained carbon steel under tensile mean stress—*M. Kang, Y. Aono, H. Noguchi*

Practical Challenges Testing Coupons with Residual Stresses from Cold Expanded Holes—*L. Reid, J. Ransom*

The Influence of Residual Stresses on the Fatigue Strength of Cold-Formed Structural Tubes—*S. Heinilä, T. Nykänen, T. Björk, G. Marquis*

The Influence of Residual Stress on the Design of Aircraft Primary Structure—*D.L. Ball*

Elastic-Plastic Finite-Element Analyses of Compression Precracking and *Its Influence on Subsequent Fatigue-Crack Growth*—*Y. Yamada, J.C. Newman, III, J.C. Newman, Jr.*

Compression Precracking to Generate Near Threshold Fatigue Crack Growth Rates in an Aluminum and Titanium Alloy—*J. Ruschau, J.C. Newman, Jr.*

RESIDUAL STRESS EFFECTS ON FRACTURE

Test Results from Round Robin on Precracking and CTOD Testing of Welds—*S.M. Graham*

Evaluation of Residual Stress Effects on Brittle Fracture Strength Based on Weibull Stress Criterion—
Y. Yamashita

Evaluation of Residual Stress Corrections to Fracture Toughness Values—*M.R. Hill, J.E. VanDalen*

Impact of Residual Stress and Elastic Follow-Up on Fracture—*C. Aird, P.J. Bouchard, S. Hadid-moud, C.E. Truman, D.J. Smith*

MULTISCALE AND PHYSICS-BASED APPROACHES

Focused Ion Beam as Tool for local Investigations of the Interaction of Microcracks with Grain Boundaries—
M. Marx, W. Schäfer, H. Vehoff

An Examination of Fatigue Initiation Mechanisms in Thin 35Co-35Ni-20Cr-10Mo Medical Grade Wires—
J.E. Schaffer

Statistical Analysis of Fatigue Related Microstructural Parameters for Airframe Aluminum Alloys—
M. Liao

Multi-Scale Approach to the Fatigue Crack Propagation in High-Strength Pearlitic Steel Wires—
J. Toribio, B. González, J.C. Matos, F.J. Ayaso

Effect of Inhomogeneity in Aligned Grains on Creep-Fatigue Crack Opening and Propagation Behavior of Directionally Solidified Superalloy—*M. Yamamoto, T. Kitamura, T. Ogata*

Hydrogen/Plasticity Interactions at an Axial Crack in Pipeline Steel—*P. Sofronis, M. Dadfarnia, I.M. Robertson, B. Somerday*

REACTOR COMPONENTS AND MATERIALS

Experimental Study of the Fracture Toughness Transferability to Pressurized Thermal Shock Representative Loading Conditions—*M. Scibetta, E. Lucon*

Introducing Heterogeneity into Brittle Fracture Modelling of a 22NiMoCr37 Ferritic Steel Ring Forging—*X. Zhao, D. Lidbury, J. Quinta da Fonseca, A. Sherry*

Stress-Triaxiality in Zr-2.5Nb Pressure Tube Materials—*B.W. Leitch, S. St. Lawrence*

FATIGUE CRACK GROWTH

Effect of Prestrain on Fatigue Crack Growth of Age-Hardened Al 6061-T6—*K. Ikematsu, T. Mishima, M. Kang, Y. Aono, H. Noguchi*

Analysis of Crack Growth at $R = -1$ under Variable Amplitude Loading on a Steel for Railway Axles—
C. Barbieri, S. Beretta, M. Carboni

Laser Generated Crack-Like Features Developed For Assessment of Fatigue Threshold Behavior—
A. Nardi, S.L. Smith

ELEVATED TEMPERATURE AND ENVIRONMENTAL EFFECTS

Biaxial Loading Effect On Higher-Order Crack Tip Parameters—*V.N. Shlyannikov, B.V. Ilchenko, N.V. Boychenkoa*

Comparison of The Temperature And Pre-Aging Influences On The Low Cycle Fatigue And Thermo-Mechanical Fatigue Behavior Of Copper Alloys (CuCoBe/CuCo2Be)—*H. Köberl, G. Winter, W. Eichlseder*

COMPONENTS and STRUCTURES

Carrying Capacity Prediction of Steam Turbine Rotors with Operation Damages—*V.N. Shlyannikov, B.V. Ilchenko*

Fatigue Crack Growth in Bolts with and without Pre-Tension Loading—*R.V. Prakash, A. Bagla*

In-Situ Fatigue Damage Investigations in Welded Metallic Components by Infrared Techniques—*J. Medgenberg, T. Ummenhofer*

Fatigue Crack Growth in Integrally Stiffened Panels Joined using Friction Stir Welding and Swept Friction Stir Spot Welding—*D.A. Burford, C.A. Widener, B.M. Tweedy*

Mechanical Evaluation of Mixed As-Cast and Friction Stir Processed Zones in Nickel Aluminum Bronze—
A.E. Nolting, L.M. Cheng, R. Ham-Su, J. Huang

Fatigue Behaviour of Adhesively Bonded Aluminium Double Strap Joints—*A.E. Nolting, D.L. DuQuesnay, P.R. Underhill*

A Simplified Modeling Approach for Predicting Global Distortion in Large Metallic Parts Caused by the Installation of Interference Fit Bushings—*R.D. Widdle, Jr, L.C. Firth*

A Concept for the Fatigue Life Prediction of Components from an Aluminum-Steel Compound—*A. Lamik, H. Leitner, W. Eichlseder, F. Riemelmoser*

Impact Fatigue Failure of HVOF Coatings and Viscoelastic Properties Modeling of the Coating-Substrate Compound—*C. David, K.G. Anthymidis, M. Athanasiou, P.K. Gotsis*