



Engineering Mechanics Corporation of Columbus  
3518 Riverside Drive – Suite 202  
Columbus, Ohio 43221

Phone: (614) 459-3200

Fax: (614) 459-6800

E-mail: epunch@emc-sq.com

**Dr. Edward F. Punch**  
**Research Leader**

**Education**

B.S., Civil Engineering, National University of Ireland (1978)  
M.S., Structural Engineering, National University of Ireland (1980)  
Ph.D., Structural Engineering, Georgia Institute of Technology (1983)  
M.B.A., International Finance, University of Michigan (1988)

**Areas of Expertise**

Detailed finite element stress and failure analysis of power plant components,  
Life estimation of transmission, heavy axle and truck suspension components by fracture mechanics techniques,  
High temperature failure mode analysis of chemical industry reactors,  
Design and analysis of vertical axis wind turbines (VAWT) for 200 kW installations,  
Multiple site damage evolution (MSD) in riveted aircraft fuselage lap splices

**Professional Affiliations**

Society of Automotive Engineers – since 1988  
National Association for Finite Element Methods and Standards – since 1997  
Institute of Engineers of Ireland – since 1984

**Prior Professional Experience**

Consultant in Fatigue and Fracture, 1995-present  
F.A.A. Center of Excellence for Computational Modeling of Aging Aircraft, 1992-1994  
General Motors Research Laboratories, 1983-1987

**Major Publications**

Lin, H., Binomiemi, R. R., Fett, G. A., Punch, E. F., Van Tyne, C., Taylor, B. C. and Matlock, D., “Investigation of the Effect of Sample Size on Fatigue Endurance Limit of a Carburized Steel,” *S.A.E. Congress*, Detroit, March, 2006

Punch, E. F., Binomiemi, R. R. and Lin, H., “Stochastic Fracture Mechanics Investigation of Test Specimen Size Effect on the Endurance Limit of 4320 Steel,” *Computational Mechanics, WCCM IV in conjunction with APCOM'04*, Beijing, Sept. 5-10, 2004

Kim, C.-W. and Punch, E. F., “Casting Solidification and Part Distortion Modeling by a Fully-Coupled Thermal-Structural Analysis,” *21<sup>st</sup> Int'l NADCA Congress*, Cincinnati, Oct. 29-Nov. 1, 2001

Punch, E. F., “An Efficient FE Fracture Mechanics Technique for Fatigue Design of Gears,” *NAFEMS World Congress*, Como, April 24-28, 2001

**Dr. Edward F. Punch**

Cheng, W. L. and Punch, E. F., "Analysis of Fatigue Crack Growth in a Residual Stress Field using Alternating Finite Element Method," *Proc. ASME-PVP Summer Meeting*, Orlando, July 27-31, 1997