

# WILLIAM MAXWELL REED

## MECHANICAL ENGINEERING SEMINAR

### Computational Mechanics Applications in Semiconductor and Optoelectronics Industries

**Daming Zhang**

**Senior Engineer and Project Leader, FEV Engine Technology, Inc.**

**Abstract:**

Part one: Applications in Semiconductor Industry

- Electronic packaging hierarchy
- Surface mount and flip chip technology
- Materials and the CTE mismatch
- Potential risks and failure modes
- Heat transfer analysis
- DOE studies on flip chip fatigue analysis
- Probabilistic fatigue life prediction
- Drop test

Part two: Applications in Optoelectronics Industry

- Demand of high speed optical networking
- Optical transmitter, receiver, and fiber
- Critical packaging components and materials
- Typical manufacturing process
- Opto package point stability analysis
- Electrical-thermal and thermal-stress simulations of hermetic sealing
- Radiation heat transfer and step welding

**Bio:** Dr. Zhang received his BS in Aerospace Engineering, from Northwestern Polytechnical University, Xi'an, China his MS in Computational Mechanics, from Northwestern Polytechnical University, Xi'an, China and his Ph.D. in Engineering Mechanics, from Iowa State University 05/1997. His dissertation was "Sensitivity BEM with Applications to Fracture Mechanics, Shape Optimization, and Flaw Detection". Daming Zhang is currently Senior Engineer and Project Leader, FEV Engine Technology, Inc., Auburn Hills, MI, Engine NVH CAE Department. Other work experiences have included: Senior Engineer, DaimlerChrysler Corporation, Powertrain CAE and Simulation Department; Project Engineer, Optimal CAE, Inc.; Project Engineer, Ford Motor Company, PD5 Chassis Durability; Research Associate, Northwestern Polytechnical University Research Institute of Structural Strength; Adjunct Professor, Wayne State University, Department of Mechanical Engineering.

**Date: Thursday, January 26, 2006**

**Time: 3:30p.m. to 4:30p.m. (refreshments 3:00p.m.)**

**Place: 323 CRMS Bldg.**

**Point of contact Dr. George Huang 7-6336 x 80640**

Meet the speaker and have refreshments  
Attendance open to all interested persons



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