

1992 Users Conference Proceedings

<u>Elastomers, Plastics, and Glass</u>	Page
The Modeling of Material Behavior—A Weak Link in the FEA Of Elastomeric Products—Invited Paper Rudlof F. Bauer Dulop Tire Corporation	1
The Thermo-Viscoelastic Analysis of Injection Molded Plastic Michael A. Burke Michael Burke Associates, Inc.	33
Isotropic vs. Orthotropic Modeling of Composite Tire Structures Subjected to Inflation and Ground Interaction Loads Fanny Zhang Dunlop Tire Corporation	63
The Modeling of Layered Steel/Elastomer Seismic Base Isolation Ludi J. Billings and Robin Shepherd Department of Civil Engineering, University of Calif. Irvine	83
Simulations of Glass Forming for Automobiles Yasufumi Kanki Asahi Glass Co., Ltd.	99
<u>Metal Forming and Contact</u>	
Stamping Analysis of Automotive Components James T. Browell Automated Analysis Corp	113
Study of A Shearing Process S.M. Chen and C.N. Chang (National Central Univ.),	141

And G.I. Tou (Tatung CAD/CAM Center)

Gear System Analysis with Automated Contact 153
Mark J. Valco
U. S. Army Vehicle Propulsion Directorate, NASA/Lewis

Transient Contact Analysis of A Compressor Piston 171
Peter R. Grimley
Automated Analysis Corporation

Superplastic Forming Model Applications for Al-Li 8090 191
Shyong Lee (National Central University) and
G.I Tou (Tatung CAD/CAM Center)

Elastic-Plastic Analysis of Multi-Stage Closed Die Forging Processes with Deformable Dies 211
T. L. Ho (Metal Industries Development Centre), K.T. Tsai (Shan Shing Hardware Works Co., Ltd.), and G.I. Tou (Tatung CAD/CAM Centet)

Finite Element Analysis of Stepped Forging Part 220
R.S. Lee, T.C. Chen, and M.C. Pan
Mechanical Engineering Dept., National Cheng Kung Univ.

Biomechanics and Biomaterials

Three-Dimensional Finite Element Analysis of Filled Composite Resins for Dental Restorative Materials 237
R.L. Sakaguchi, S.E. Borgersen, and W.H. Douglas
Minnesota Dental Research Center for Biomaterials and Biomechanics, University of Minnesota

**Two-Dimensional Contact Analysis of Physiologically Loaded
Dental Implant Materials** **245**

R.L. Sakaguchi (Minnesota Dental Research Center for
Biomaterials and Biomechanics, University of Minnesota)
And S.E. Borgersen (Biosimulations, Inc.)

**Nonlinear Finite Element Analysis of Laser Weld and Seal Design
In Biomedical Implant Devices** **259**

Svenn E. Borgersen, Joe Lessar, Doug Weiss, and Darrel
Untereker Promeon Division, Medtronic, Inc.

**Optimization of a Biaxial-Tension and Shear Soft Tissue Specimen
Including Large Deformation, Finite Strain Analysis** **275**

David M. Flynn
Cardiac Pacemakers, Inc.

Composites and Ceramics

Global-Local Analysis of Composite Structures—Invited Paper **293**

C.T. Sun
School of Aeronautics and Astronautics, Purdue University

Statistical Prediction of Failure Location in Ceramic Test Specimens **303**

Thomas J. Vasko and Brice N. Cassenti
Applied Mechanics Research, United Technologies Research Center

Welding

Thermal Stress and Strain Analysis in Traveling Autogenous Welds **313**

J. Randy Roper, John Vossler, and Dave Osborn
EG7G Rocky Flats

**Finite Element Modeling of Gas Tungsten Arc Welding
Using Automatic Rezoning Techniques** 335

John H. Cowles, Jr. (Pratt & Whitney Aircraft) and
Anthony F. Giamei (United Technologies Research Center)

**Thermal and Stress Calculation for a Welding Process
At the Inlet Manifold and the Engine Chamber of the Main Engine
Of the ARIANE V**

Franz Niedermeier
Deutsche Aerospace—Messerschmitt-Bolkow-Blohm GmbH

Education, Animation, and Crack Propagation

Trends in Finite Element—Promises and Pitfalls—Invited Paper 367

William J. Anderson
Department of Aerospace Engineering, University of Michigan

**On-Screen Animation and Data Visualization of MARC Output
Using PV WAVE** 385

John J. Vossler, III
EG&G Rocky Flats

**Finite Element Method Applied to the Potential Drop Technique
For Crack Monitoring on Pipe** 395

Shyh-Rong Tzan, Wei-Tai Jao, and Chih-Ming Wu
Materials Research Laboratories,
Industrial Technology Research Institute

Hardware/Software Trends

Supercomputer Technology in Emerging Industries—Invited Paper 401

Greg Clifford
Cray Research, Inc.

Latest Advances in Mechanical Design Automation Olimpio DeMarco Parametric Technology Corporation	431
High Performance Workstations for Nonlinear FEA Michael A. Schulman and Cheng Y. Liao Silicon Graphics, Inc.	433
Transformation of Design Models to Analysis Models Jeff Delmas Intergraph Corporation	455
Evolution of Sun Hardware/Software for Nonlinear FEA Jim Fitzpatrick Sun Microsystems Computer Corporation	*
Computational Structural Mechanics and Fluid Dynamics-- A Workstation Perspective Jay Salunke IBM Corporation	*
Manufacturing Process Simulation on Supercomputers Norman Lindsey Convex Computer Corporation	471

