

**COMPUTER AIDED MODELLING OF THE HOT FORGING PROCESS****J. S. Gunasekera***(Dept. of Mechanical Engineering, Monash University,  
Clayton 3168, Australia)***H. L. Gegel and J. C. Malas***(Air Force Materials Laboratory, Wright-Patterson Air  
Force Base, Dayton, Ohio, USA)*

A rigid-visco-plastic finite element formulation is used to model the hot forging process and to predict the metal flow during the forging process. The central processor to the analysis of isothermal forging of Aluminium and Titanium is a powerful and efficient finite element package called 'ALPID' (Analysis of Large Plastic Incremental Deformation) developed by the U. S. Air Force Materials Laboratory in collaboration with Battelle Columbus Laboratories. Efficient and user friendly pre and post processors are developed to control the input and output of information.

Experiments on actual and model materials have shown that the finite element predictions agree with the experimental ones within a few percent. The display of results of finite element analysis and visualization and understanding of the geometries of preforms and finished products are enhanced by the use of shaded colour graphics.