

## Fast upsetting of circular cylinders of aluminium metal matrix composites: experimental results and numerical analysis

### ABSTRACT

Cylindrical specimens of Al/Cu and Al/Li metal matrix composite (MMC) were subjected to dynamic compression at room temperature using an experimental drop hammer. Force-time and displacement-time traces were recorded. The experimental results are compared with theoretical results obtained using finite-difference analysis proposed in a previous paper by the authors [1]. The computational results obtained for the force-time histories agree reasonably with the experimental observation. Effect of strain rate and thermal softening on the mechanical behaviour of Al/Cu MMC and Al/Li MMC were examined.

**Keyword:** Metal matrix composites; Strain rate; Dynamics behaviour; Finite-difference numerical technique