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| **Title:** | Finite Element Prediction of Deformation of Closed-cell Cellular Materials for Sustainable Materials Characterization | | |
| **Author(s) Name:** | Md. Ashraful Islam; Mahadi Hasan; S. M. Mahbub Hasan; Himel Roy | | |
| **Contact Email(s):** | mahadi@aiub.edu | | |
| **Published Journal Name:** | International Conference on Science and Contemporary Technologies 2021 | | |
| **Type of Publication:** | International Conference | | |
| **Volume:** |  | Issue |  |
| **Publisher:** | IEEE | | |
| **Publication Date:** | Aug 5-7, 2021 | | |
| **ISSN:** | 2473-2001 | | |
| **DOI:** | 10.1109/ICSCT53883.2021.9642572 | | |
| **URL:** | https://ieeexplore.ieee.org/abstract/document/9642572 | | |
| **Other Related Info.:** | Page 1 - 5 | | |
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| **Abstract:** |  |
| Finite Element (FE) method is an essential tool for sustainable materials characterisation without continuous destruction of materials such as conventional materials characterisation techniques. This study presents the prediction of deformation behaviour of closed-cell metal foams subjected to low-velocity impact using FE analysis. The deformation process was investigated both numerically and experimentally, and a good agreement was found between the experiment and FE analysis. The impact tests were conducted using a drop-tower with various shaped impactors with impact energies of 114J. FE modelling using ABAQUS explicit was undertaken to explore the deformation of the closed-cell metal foams. The results show that FE modelling using solid geometry of actual foam properties demonstrates a close correlation with experimental results. Two impactors (a flat-faced and a hemispheric) were used in this investigation. | |