

## Fabrication, characterisation and modelling of uniform and gradient auxetic foam sheets

DUNCAN, Oliver <http://orcid.org/0000-0001-9503-1464>, ALLEN, Tom, FOSTER, Leon <http://orcid.org/0000-0002-1551-0316>, SENIOR, Terry <http://orcid.org/0000-0002-3049-5724> and ALDERSON, Andrew <http://orcid.org/0000-0002-6281-2624>

Available from Sheffield Hallam University Research Archive (SHURA) at:

http://shura.shu.ac.uk/14650/

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

## **Published version**

DUNCAN, Oliver, ALLEN, Tom, FOSTER, Leon, SENIOR, Terry and ALDERSON, Andrew (2017). Fabrication, characterisation and modelling of uniform and gradient auxetic foam sheets. Acta Materialia, 126, 426-437.

## Copyright and re-use policy

See http://shura.shu.ac.uk/information.html



Figure 7: PR vs geometry predictions. (a)  $v_{xz}$  vs  $\theta_{xz}$  for a honeycomb having  $h_{xz} = 1.2$ ,  $l_{xz} = 1$ ,  $b_{xz} = 0.2$  and  $K_{hf}/K_s = 0$  (flexing/hinging), 0.004, 0.04 and  $\infty$  (stretching). Cell geometrical parameters are shown (insert top left), and cell size/shape variation vs  $\theta_{xz}$  is shown schematically below the figure. (b)  $v_{xz}$  vs  $\varphi$  for the same honeycomb with  $\theta_{xz} = 0$  and  $K_{hf}/K_s = 0.004$  and 0.04. Cell shape for  $\theta_{xz} = 0$  and definition of rotation angle  $\varphi$  are shown in schematic insert.