

Negative behaviour from a general Star-4 system

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There are a number of mechanisms that can lead to auxetic behaviours. Amongst these are the Star- n systems which are considered to be a subclass of re-entrant mechanism. This work looks into how the Star-4 can be generalised by having different internal angles and different ligament thicknesses. It will be shown that these changes can make the structure exhibit a more negative Poisson's ratio. In particular, changing the ligament thicknesses can induce the Star-4 system to deform in different ways. The work also looks into the limitations exhibited by the Star- n systems and investigates how these can be overcome.