

Routes to program thermal expansion in three-dimensional lattice metamaterials built from tetrahedral building blocks

Hang Xu , Amr Farag , Damiano Pasini

PII: S0022-5096(18)30043-7
DOI: [10.1016/j.jmps.2018.04.012](https://doi.org/10.1016/j.jmps.2018.04.012)
Reference: MPS 3333



To appear in: *Journal of the Mechanics and Physics of Solids*

Please cite this article as: Hang Xu , Amr Farag , Damiano Pasini , Routes to program thermal expansion in three-dimensional lattice metamaterials built from tetrahedral building blocks, *Journal of the Mechanics and Physics of Solids* (2018), doi: [10.1016/j.jmps.2018.04.012](https://doi.org/10.1016/j.jmps.2018.04.012)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Highlights

- Thermal expansion is reframed for bi-material tetrahedral building blocks
- All possible material permutations in a bi-material tetrahedron are investigated
- A scheme is presented for spatial lattices to meet thermal expansion requirements
- Nine concepts are introduced with prescribed thermal expansion behaviour
- Thermal expansion, elastic properties and trade-off are assessed for all concepts

ACCEPTED MANUSCRIPT

Download English Version:

<https://daneshyari.com/en/article/7177403>

Download Persian Version:

<https://daneshyari.com/article/7177403>

[Daneshyari.com](https://daneshyari.com)