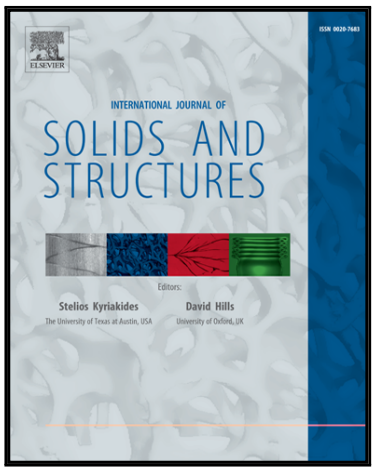

Mobility of symmetric block-and-hole polyhedra

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PII: S0020-7683(18)30224-5
DOI: 10.1016/j.ijsolstr.2018.05.029
Reference: SAS 10009

To appear in: *International Journal of Solids and Structures*

Received date: 30 October 2017
Revised date: 23 May 2018
Accepted date: 31 May 2018

Please cite this article as: Simon D. Guest, Patrick W. Fowler, Bernd Schulze, Mobility of symmetric block-and-hole polyhedra, *International Journal of Solids and Structures* (2018), doi: 10.1016/j.ijsolstr.2018.05.029

Mobility of symmetric block-and-hole polyhedra

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Abstract

Block-and-hole polyhedra can be derived from a bar-joint triangulation of a polyhedron by a stepwise construction: select a set of non-overlapping disks defined by edge-cycles of the triangulation of length at least 4; then modify the interior of each disk by an addition or deletion operation on vertices and edges so that it becomes either a rigid block or a hole. The construction has a body-hinge analogue. Models of many classical objects such as the Sarrus linkage can be modelled by block-and-hole polyhedra. Symmetry extensions of counting rules for *mobility* (the balance of mechanisms and states of self-stress) are obtained for the bar-joint and body-hinge models. The extended

[1]Supported by EPSRC First Grant EP/M013642/1