

Title (en)

Lightweight structures and methods for the fabrication thereof.

Title (de)

Leichte Struktur und Verfahren zu ihrer Herstellung.

Title (fr)

Structures légères et les procédés de fabrication.

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Application

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Abstract (en)

A process is disclosed for fabricating lightweight structures out of material such as silicon carbide (SiC) and silicon (Si). The lightweight structure consists of a core (10) to define the shape and size of the structure. The core is coated with an appropriate deposit such as SiC or Si to give the lightweight structure strength and stiffness and for bonding the lightweight structure to another surface. The core (10) is fabricated from extremely thin ribs (12a, 12b, 12c and 14a.....14f) of appropriately stiff and strong material such as graphite. First, a graphite core consisting of an outer hexagonal cell with six inner triangular cells is constructed from the graphite ribs. The graphite core may be placed on the back-up side of a SiC faceplate and then coated with SiC to produce a monolithic structure without the use of any bonding agent. Cores and methods for the fabrication thereof in which the six inner triangular cells are further divided into a plurality of cells are also disclosed.

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