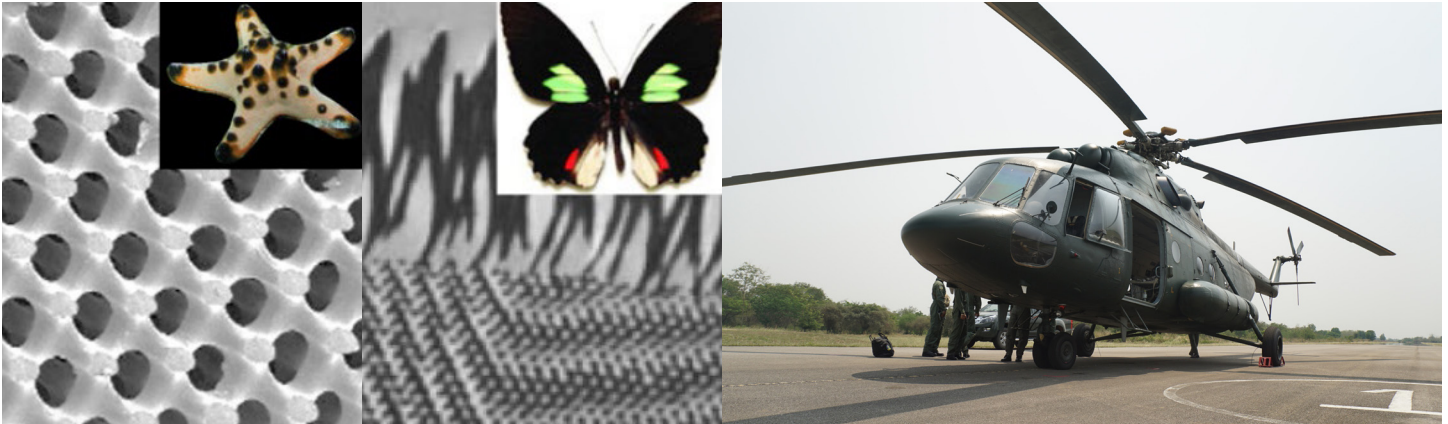


LATTIX

Lattice Matrix Armor Systems



Natural structures inspired LATTIX's design. (Z. Jia et. al, Matter, 2023).

LATTIX can be manufactured to fit cockpits, which are notoriously difficult to armor due to their shape.

Summary

Originally developed as micro-meteorite space debris armor, LATTIX offers a lightweight armoring technique that can be applied to modular panels for aircraft or helicopters.

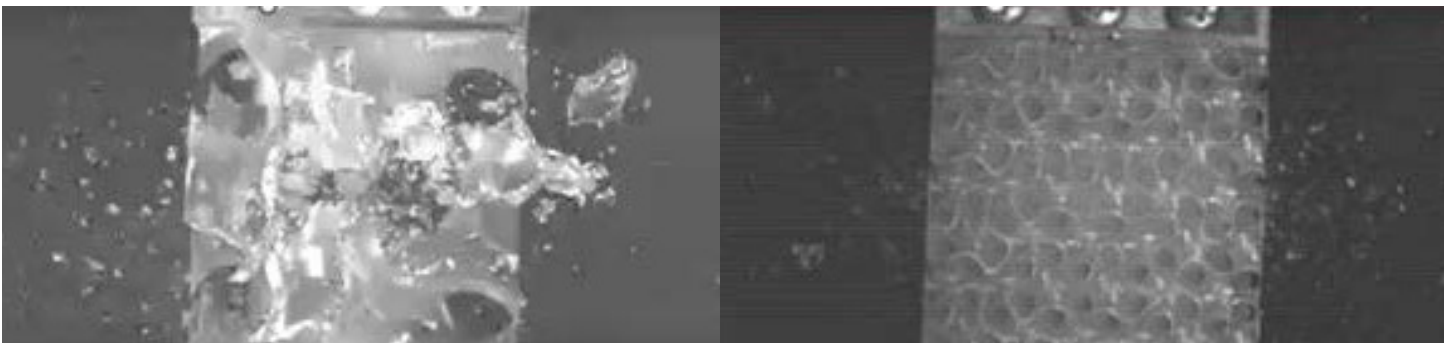
Technology

LATTIX leverages Oceanit's AI for designing bio-inspired, ultra lightweight, high-strength, and impact resistant armoring structures.

Complex structures, found in natural materials such as butterfly wings and bone, are used as the base design from which LATTIX optimizes structures.

Details

Complex structures have a zero-mean curvature, meaning they have limited areas of stress concentration independent of the direction of loading. Since complex structures are mathematically expressed, it is possible to optimize various aspects of the structure (i.e. thickness, unit cell shape and size) for multiple requirements, such as light weight and impact resistance. Due to their complexity, LATTIX structures are additively manufactured.



High velocity impact experimental results show the damage sustained when a bullet is shot at an unoptimized structure (left) versus a LATTIX optimized structure (right) of the same density.