



# ELiSE

Evolutionary Light Structure Engineering

Architecture

## Lightweight pavilion

In architecture lightweight construction is advantageous in a variety of fields such as the development of mobile buildings or front structures. As construction materials concrete or fiber composites are particularly suitable as they allow almost any arbitrary structure. In lightweight construction complex organic structures provide efficient stress distribution, avoid notch stresses and are therefore particularly powerful.

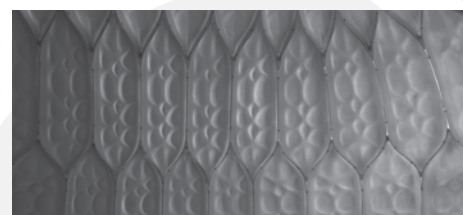
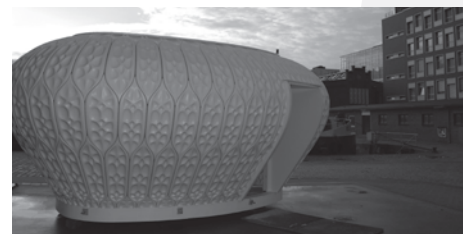
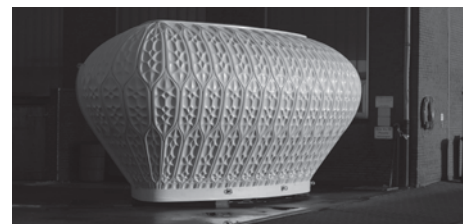
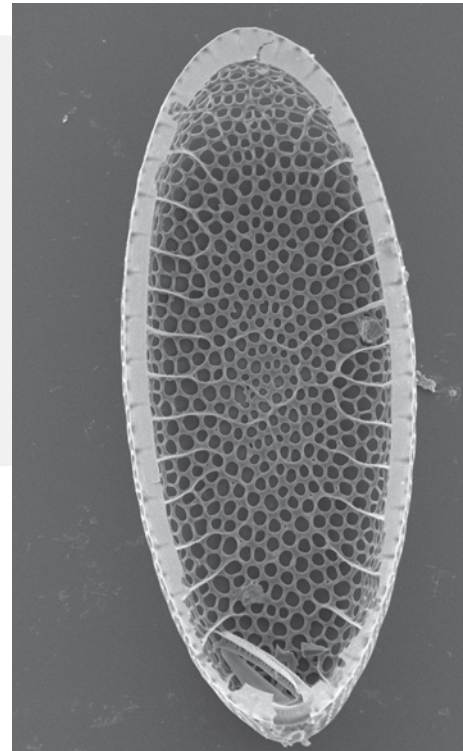
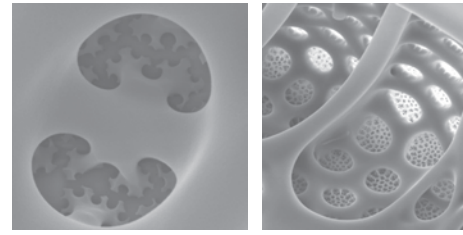
Based on fractal (self-similar) case-structures of marine diatoms such as *Isthmia* or *Coscinodiscus*, a very lightweight, visually attractive and innovative pavilion was developed. With its specific structural geometry the pavilion was designed to bear local as well as global loads while using a wall thickness of only 4mm. A combination of fiberglass and plastic has been used, similar to the material utilized for yacht-construction.

As a special feature, Julia and Göran Pohl integrated an eccentric creative component into the technical aspects. In the framework of the scientific association HVI PlanktonTech, this pavilion named Cocoon FS was developed as a morphogenetically generated piece of art. The result shows that complex structures based on plankton organisms can be used efficiently to combine technological lightweight components with aesthetic standards.

- > Combination of technical and creative components
- > Weight of 750kg with outer dimensions of 5x6m
- > Modular design based on fractal structures of plankton organisms
- > 4mm wall thickness, translucent hull

**PlanktonTech**

a product from **AWI**  **imare**  
Institute for Marine Resources GmbH



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