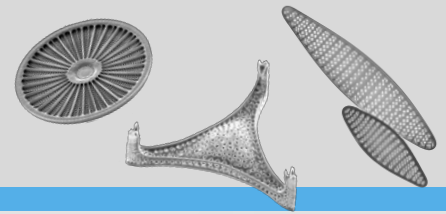


Good Vibrations

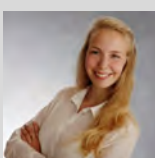


Investigation of natural vibrations and lightweight design potential of different lattice and honeycomb structures

Diatoms show a wide diversity of regular and irregular lattice and honeycomb structures. Besides the high potential for lightweight designs, the structures are expected to have special vibration properties to protect the algae from external vibrations caused by the attacks of predators.

This project investigates to which extent bio-inspired structural irregularities can positively influence vibration characteristics. In cooperation with the German Electron Synchrotron (DESY), the girder structure of the new storage ring X-ray source PETRA IV will be designed and optimized with regard to its vibration properties.

- Use of biomimetic lightweight design structures for optimal vibration properties
- Direct adjustment of the natural frequencies of lightweight design structures
- Optimization of the girder of a particle accelerator as a specific application example



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