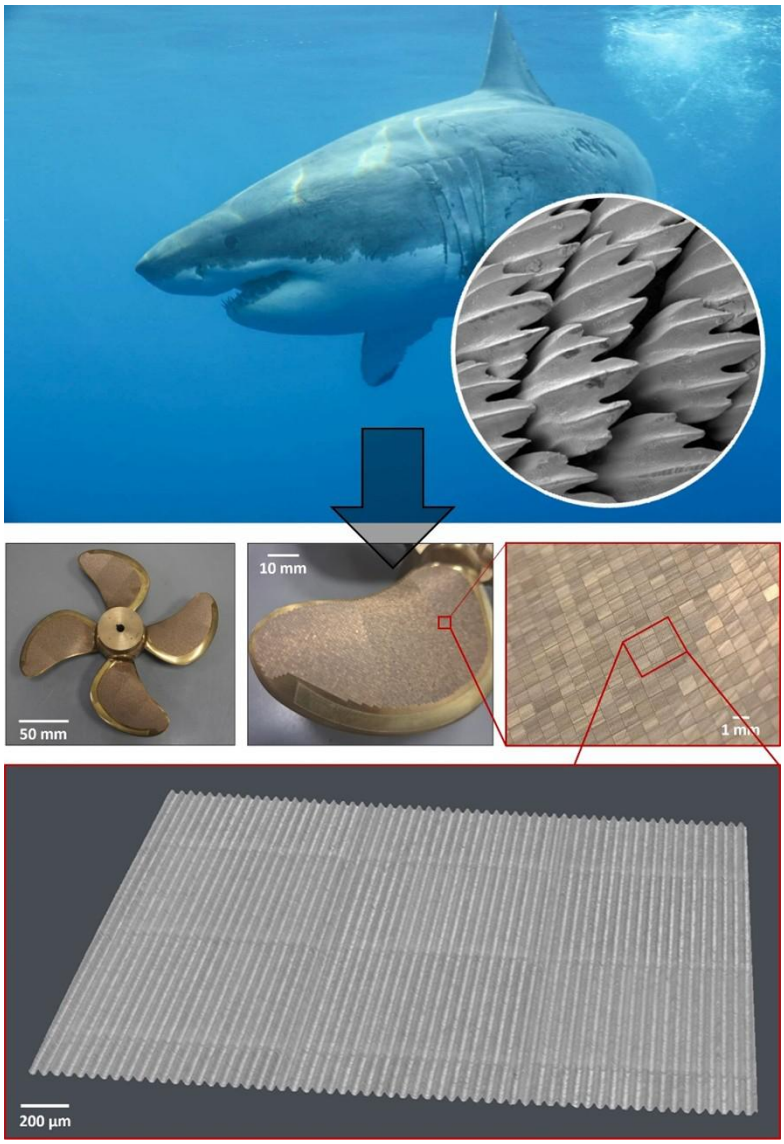
# Laser Bionics

**Nature Meets High Technology: Shark Skin Inspires More Efficient Ship Propellers**

Laser bionics refers to an interdisciplinary research approach in which functional mechanisms from nature are studied and applied to technical problems. One example of this is the flow-optimized microstructure of shark skin. The microscale grooves on the scales, also known as riblets, enable the shark to move through the water in an energy-efficient manner.




Using an ultrashort-pulsed laser, we applied a shark-skin-like microstructure to the surface of a ship propeller model. In towing tank tests, it was demonstrated that the efficiency of this propeller increased by 3.41 % at the operating point. As a result, this technology will become increasingly important, particularly for shipbuilding and other fluid dynamics applications.

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