

2023-1.1.1-PIACI_FÓKUSZ-2024-00002

PRELIMINARY DESIGN SYSTEM OF COMPOSITE ROTATING BLADES FOR AEROSPACE AND WIND TURBINE APPLICATIONS



TRANSFORM DEVELOPMENTS WITH VIRTUAL PROTOTYPES

LOWER COSTS

Development, testing, certification, warranty & call-back

DESIGN OPTIMIZATION

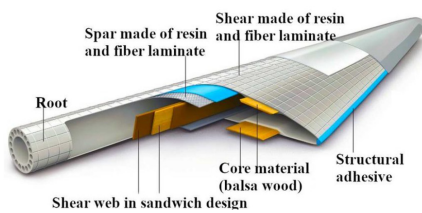
Reduction of labour, material requirements & weight

DEVELOPMENT EFFICIENCY

Shorter go-to-market time

INNOVATIVE SOLUTION

Rapid Multiphysics prototyping across any industries and work areas

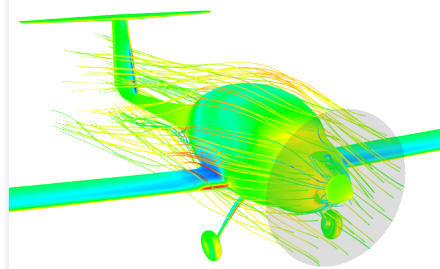


B. G. Compton, J. A. Lewis, 3d-printing of light-weight cellular composites, *Advanced materials* 26 (34) (2014) 5930–5935.
doi:<https://doi.org/10.1002/adma.201401804>.

COMPREHENSIVE WEB TOOL FOR BLADES

Automated preliminary design system

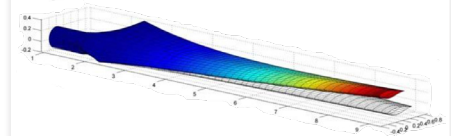
Investigation of any propeller design from aerodynamical and coupled structural aspect



3D CORRECTED VIRTUAL BLADE MODEL (VBM) SUPPORTED BY MACHINE LEARNING (ML)

Faster CFD simulation of blades

Better accuracy comparable to an explicit 3D simulation



<https://eolos.umn.edu/news/modeling-wind-turbine-blades-fluidstructure-interaction-analysis>

NUMERICAL EVALUATION TECHNIQUE OF THE RESISTANCE AGAINST FATIGUE OF COMPOSITE LAYERS

FEM based operating stress calculation

Automated failure and fatigue analysis