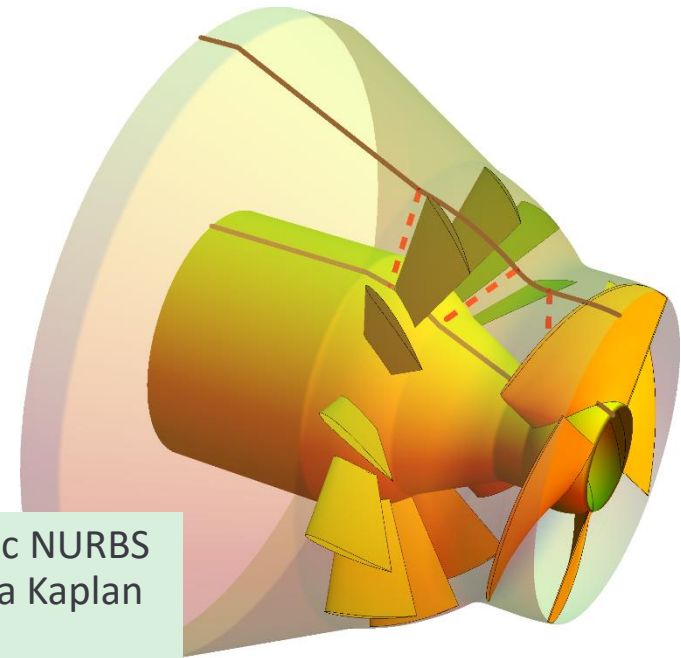# Shape optimization of water turbines

Challenge

To provide an automatic optimization tool for design of Kaplan and Francis turbines with high utility qualities.

NURBS-BASED ISOGEOMETRIC ANALYSIS FOR FLOW SIMULATION AND GRADIENT-BASED OPTIMIZATION

Goals

- To increase efficiency of designed turbines in differ-rent operating conditions.
- To reduce cavitation.
- To speed-up designing process for specific needs.

Parametric NURBS model of a Kaplan turbine

Benefits

[An automatic computational tool for designing and optimization of Kaplan and Francis turbines]

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