Innovation category
TRL 3

NTNU
SINTEF

Turbine control

Innovation description

Advanced strategies for control of floating offshore wind turbines; control algorithms and implementation in Matlab, developed by NTNU and SINTEF Energy Research

- **Passivity-based control for floating turbines**
- **Control of stall-regulated floating vertical-axis turbine**

Smart control systems for load mitigation and structural stabilization are important for optimal production of power and cost reduction.

Impact

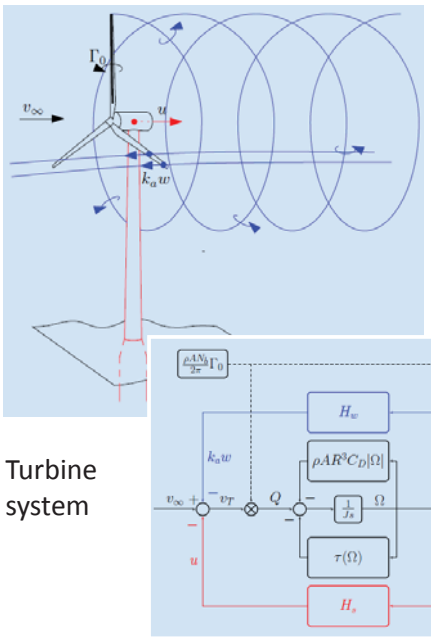
- **Reduced turbine loads**
- **Increased power production**

Further development

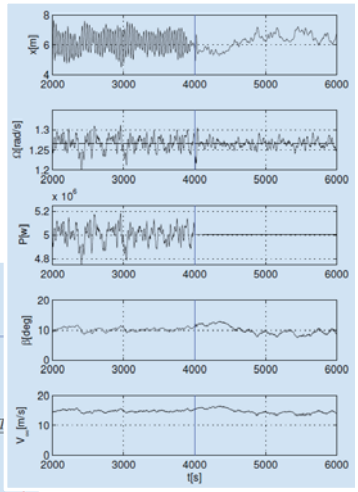
- **Validation of passivity-based control concepts**
- **Further work on vertical axis turbine control dependent on industry interest in the concept**

References

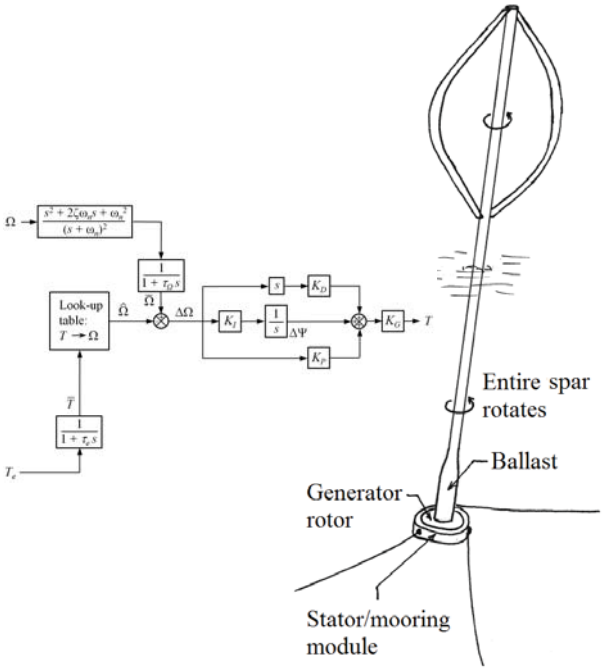
- **M. D. Pedersen, T. I. Fossen, 7th Vienna International Conference on Mathematical Modelling (MATHMOD 2012)**



Turbine system



Stability improvement with pacifying control



Control of Deepwind floating vertical axis turbine