**Advanced Pitch Angle Control based on Genetıc Algorıthm and Particle Swarm Optımızatıon for Variable-Speed on Fast systems**

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| **Abstract**  This study looks into how wind turbines' rotor speed quality is improving as their mechanical loads are getting lighter. The wind turbine's rotor speed is kept constant by changing the blade angle to the nominal wind speed [1]. Different outcomes can be retrieved using control approaches (such PI, genetic algorithms, and particle swarm optimization) [2, 3, 4]. Additionally, we were able to lower the mechanical stresses on the turbine using the control methods thanks to the individual control of the blade tilt angle. Matlab/Simulink was used to model the wind turbine. |
| Keywords: Individual pitch control, Wind turbine, Fast system, Genetic algorithm, Particle swarm optimization |

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