# Comparative power extraction analysis of novel nature inspired vertical axis wind turbines

**S.N. Ashwindran, A.A. Azizuddin, A.N. Oumer, M.Z. Sulaiman**

1 Faculty of Mechanical Engineering, Universiti Malaysia Pahang,
26600 Pekan, Pahang, Malaysia
Email: azizuddin@ump.edu.my

**Abstract:**
The aim of this paper is to investigate the power extraction performance of three biologically inspired vertical axis wind turbine. In this study, the proposed turbines are simulated in 2D in Ansys using URANS approach based on two equation turbulent transport model-SST. The turbines are simulated under the similar solver and numerical configuration. FVM is adapted to analyse the turbines assisted by sliding mesh method (SSM) under non-conformal mesh configuration. The proposed turbine is analysed in terms of moment and power coefficient. Design 1 and Design 2 indicated promising result for a feasible and practical wind turbine.

*Keywords*: Wind Turbine; Sliding Mesh Method (SSM); Turbulent Transport Model

## ACKNOWLEDGEMENTS