# Sensorless Maximum Power Point Tracking of Wind by DFIG Using Rotor Position Phase Lock Loop (PLL)

**Author:** **Shen B.; Mwinyiwiwa Bakari M.M.; Zhang Y.; Ooi B. T.**

**Abstract**

This paper presents an invention, the rotor position phase lock loop (PLL), which enables maximum power point (MPPT) tracking of wind by doubly-fed induction generators without needing a tachometer, an absolute position encoder, or an anemometer. The rotor position PLL is parameter variation insensitive, requiring only an estimate of the magnetization inductance for it to operate. It is also insensitive to noise in the electrical measurements. Proof of concept is by: (1) digital simulations and (2) experimental testing of a laboratory prototype**.**

**Keywords:** asynchronous generators; phase locked loops; rotors; wind power plant; turbogenerators; wind turbines; magnetisation

- 