

## **Design and fabrication of rotor lateral shifting in the axial-flux permanent-magnet generator**

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### **ABSTRACT**

The development of axial-flux permanent-magnet (AFPM) machines has become a mature technology. The single-stator double-rotor (SSDR) AFPM structure has advantages on the compactness and the low up to medium power applications so the microscale size and low-cost applications are reachable to be designed. The research main objectives are designing and manufacturing the lateral shifting from the north poles of the first rotor face the north poles of the second rotor (NN) to the north poles of the first rotor face the south poles of the second rotor (NS) categories as well as finding the best performance of the proposed method and implementing in a low cost and micro-scale AFPMG. The novel lateral shifting on the one of the rotors shows performance at  $19,2^0$  has the highest efficiency at 88,39% during lateral shifting from N – N (00) to N – S (360) on rotor<sub>2</sub>. has the highest efficiency at 88,39% during lateral shifting from N – N ( $0^0$ ) to N – S ( $36^0$ ) on rotor<sub>2</sub>.

Keywords : axial-flux permanent-magnet, single-stator double-rotor, NN, NS, rotor lateral shifting