

## Study of a Photovoltaic System Using MPPT Buck-Boost Converter

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**Abstract :** The work presented in this paper present the design and the simulation of a centrifugal pump coupled to a photovoltaic (PV) generator via a MPPT controller. The PV system operating is just done in sunny period by using water storage instead of electric energy storage. The process concerns the modelling, identification and simulation of a photovoltaic pumping system, the centrifugal pump is driven by an asynchronous three-phase voltage inverter sine triangle PWM motor through. Two configurations were simulated. For the first, it is about the alimentation of the motor pump group from electrical power supply. For the second, the pump unit is connected directly to the photovoltaic panels by integration of a MPPT control. A code of simulation of the solar pumping system was initiated under the Matlab-Simulink environment. Very convivial and flexible graphic interfaces allow an easy use of the code and knowledge of the effects of change of the sunning and temperature on the pumping system.

**Keywords :** photovoltaic generator, chopper, electrical motor, centrifugal pump

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