

## عنوان مقاله:

Applying Sliding-Mode Control to a Double-Stage Single-Phase Grid-Connected PV System

## محل انتشار:

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## خلاصه مقاله:

This study investigates a new double-stage single-phase Grid-Connected (GC) Photo-Voltaic (PV) system. This PV system includes a DC-DC Positive Output Super Lift Luo Converter (POSLLC) and a single-phase inverter connected to a grid through an RL filter. Due to its advantages, the POSLLC was used between PV panel and inverter instead of the conventional boost converter. The state space equations of the system were solved. By using two Sliding Mode Controls (SMCs), PV panel voltage and POSLLC inductor current were controlled and the designed controls were compared. Two of these SMCs included a simple Sign Function Control (SFC) and a conventional SMC. To control the power injected into the grid with a unity power factor, an SMC was used. Perturb and Observe (P&O) method was employed to reach maximum power of the PV panel. The Maximum Power Point Tracking (MPPT) control generated the voltage reference of the PV panel. Similar controls were used for the boost converter instead of POSLLC. The obtained results were compared.

## کلمات کلیدی:

Sliding mode, POSLLC, Grid connected, Photovoltaic

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1194891>

