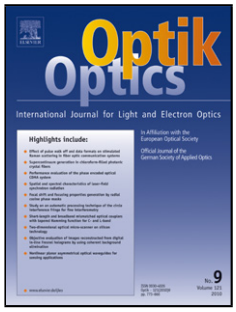


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# A parameter identification model for the Photovoltaic grid-connected inverter

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**Abstract:** The estimation of the photovoltaic (PV) inverter model parameters could lay the foundation for analyzing the grid-connected operation of PV generation system. In this paper, the control parameters to be identified are determined first through the analysis of the double loop control system structure of the PV inverter. The concerned parameters includes four proportional and integral coefficients ($k_{PU}$, $k_{IU}$ , $k_{PI}$ and $k_{II}$) and the filtering inductance ($L$). Then a parameter identification model based on simulated annealing-particle swarm optimization (SAPSO) algorithm is proposed to identify the control parameters in MATLAB environment. The comparison between the identification results of the SAPSO and the other optimization algorithms indicates that SAPSO identification model possesses high accuracy and fast convergence speed. The simulation results with identified values under the disturbance of temperature and