

A Bi-facial Silicon Solar Cell Parameters Determination by Impedance Spectroscopy

A. Dieng, A. Diao, S. Mbodji, I. Ly and G. Sissoko

*Laboratoire des Semiconducteurs et d'Energie Solaire, Département de Physique,
Faculté des Sciences et Techniques, Université Cheikh Anta Diop, Dakar, Dakar Fann, Senegal*

In this paper, a bi-facial silicon solar cell under white light illumination and under the application of constant magnetic field is studied in frequency modulation. To determine parameters such as series resistance, parallel resistance and capacitance, we utilized the Nyquist diagram by plotting the imaginary versus real part of the solar cell impedance. The use of the Bode diagram permits us to extract the minority carrier lifetime. Thus, all electric and electronic parameters depend on the applied magnetic field.