

Abstract Submitted
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Frequency and voltage dependence of series resistance in a solar cell ALEXANDER OGLE, THADDEUS COX, JENNIFER HEATH, Linfield College — While admittance measurements of solar cells are typically conducted in reverse or at zero bias, and analyzed using the depletion approximation, the operating point of the solar cell is in forward bias, and the series resistance is often estimated using IV curves with a high forward current. In this mode, the device is no longer in the depletion regime, and the large number of injected minority carriers alter the transport properties significantly. In our Cu(In,Ga)Se₂ devices, we measure negative values of capacitance at high forward bias, which may be linked to injected minority carriers and carrier transport limitations, although our calculations of capacitance may also be influenced by series resistance. In this study, we compare ac and dc measurements of voltage dependent series resistance to try to better understand the negative capacitance signal.

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