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Capacitance of thin film solar cells: violating the depletion approximation THADDEUS COX, ALEXANDER OGLE, JENNIFER HEATH, Linfield College — Capacitance measurements of solar cells are able to detect minute changes in charge in the material. For that reason, capacitance is used in many methods to electrically characterize the solar cell. Standard interpretations of capacitance relies on many assumptions, which, if wrong can skew the results. In some solar cells where a back contact barrier is suspected, measurements at high forward bias can be used. We have seen that apparent signatures of a back contact barrier in Cu(In,Ga)Se_2 may actually be the first signs of a negative contribution to capacitance. We will discuss the implications of negative capacitance, and its relationship to other electronic characteristics of the device.

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