

Belmopan solar thermal energy

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Our findings show that the device performance, while highly promising, is limited by the various tradeoffs in terms of material properties and device physics. Moreover, we reveal that the PETE mode is not guaranteed in a semiconductor thermionic solar cell under optimal operation, nor is it necessary for achieving a performance comparable to photovoltaics. This work sheds light on the issues and challenges in semiconductor thermionic solar conversion that need to be overcome when considering a complete device-level operation.

The data are shown at the maximum power point for a Si and b GaAs for different p-type doping levels in the emitter and a solar concentration ratio of 100.

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