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Perovskite Solar Cells Penetration on Electric Grids Based on the Power Hardware in the Loop Methodology

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Abstract : In this work, we present for the first time the grid-integration of 3rd generation perovskite solar cells (PSCs) based on nanotechnology in fabrication. The effect of this penetration is analyzed in normal, fault, and islanding cases of operation under different irradiation conditions using the power hardware in the loop (PHIL) methodology. The PHL method allows the PSCs to connect to the electric grid, which is simulated in the real-time digital simulator (RTDS), for laboratory validation of the PSCs behavior under conditions very close to real.

Keywords : perovskite solar cells, power hardware in the loop, real-time digital simulator, smart grid
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