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Hole-selective NiO:Cu Contact for NiO/Si Heterojunction solar cells

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Abstract:

Heterojunction architectures become a major trend in the development of high power conversion efficiency (*PCE*) c-Si solar cell in recent. However, NiO as a prevailing material in other application is not favored in c-Si solar cells. In this study, a novel solar cell architecture using nonstoichiometric p-type NiO thin films as a hole-selective, dopant-free contact to n-type crystalline silicon (n-Si) is successfully fabricated. We achieved a power conversion efficiency (*PCE*) of 4.3% in the pure NiO/n-Si heterojunction solar cell, which is the first case to be reported. Further Cu-incorporation