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(54) **GROUP IV NANOPARTICLE JUNCTIONS AND DEVICES THEREFROM**

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(57) **ABSTRACT**

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A device for generating electricity from solar radiation is disclosed. The device includes a wafer doped with a first dopant, the wafer including a front-side and a back-side, wherein the front-side is configured to be exposed to the solar radiation. The device also includes a fused Group IV nanoparticle thin film deposited on the front-side, wherein the nanoparticle thin film includes a second dopant, wherein the second dopant is a counter dopant. The device further includes a first electrode deposited on the nanoparticle thin film, and a second electrode deposited on the back-side, wherein when solar radiation is applied to the front-side, an electrical current is produced.

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PARTICLE POINT JUNCTION SOLAR CELL

