publications, databases, and patents cited herein are hereby incorporated by reference for all purposes

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CONCLUSION

[0110] It is to be understood that the above description and examples are intended to be illustrative and not restrictive. Many embodiments will be apparent to those of skill in the art upon reading the above description and examples. The scope of the invention should, therefore, be determined not with reference to the above description and examples, but should instead be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled. The disclosures of all articles and references, including patent applications and publications, are incorporated herein by reference for all purposes.

What is claimed is:

1. A photovoltaic device comprising:

a substrate having a thin film disposed thereon, wherein the thin film comprises alloyed ternary nanocrystals.

2. The device of claim **1** wherein the thin film comprises a photoactive layer.

3. The device of claim **2** wherein the photoactive layer comprises at least a single layer of the alloyed ternary nanocrystals.

4. The device of claim **1** wherein at least a portion of the nanocrystals comprises a material selected from the group consisting of metals and Group II-VI, Group III-V, and Group IV semiconductors and alloys thereof.

5. The device of claim **1** wherein the nanocrystals comprise a lead chalcogenide or combinations thereof.

6. The device of claim **1** wherein the nanocrystals comprise PbSSe.

7. A method of making ternary compound nanocrystals, the method comprising:

degassing a solution of PbO, oleic acid and 1-octadecene (ODE) in a container;

heating the solution in the container;