THAT WHICH IS CLAIMED:

1. A method of fabricating an inverted metamorphic multijunction (IMM) solar cell comprising:

forming a first subcell upon a temporary substrate;

forming a second subcell upon the first subcell, the second subcell having a smaller bandgap than the first subcell;

bonding the second subcell to a silicon subcell;

removing the temporary substrate;

forming a first gridded metal layer on the second subcell;

forming a second gridded metal layer on the silicon subcell;

depositing an anti-reflection coating on exposed portions of the second subcell between grids of the first gridded metal layer; and

depositing an anti-reflection coating on exposed portions of the silicon subcell between grids of the second gridded metal layer;

wherein bonding the second subcell to the silicon subcell comprises establishing metal-to-metal bonds between the first and second gridded metal layers of the second subcell and the silicon subcell such that a plurality of spaces are defined between the grids of the first and second gridded metal layers in order to space the second subcell and the silicon subcell apart from one another.

2. A method according to Claim 1 further comprising forming an electrical contact on the first subcell following removal of the temporary substrate.

3. A method according to Clam 2 further comprising depositing an anti-reflection coating on exposed portions of the first subcell.

4. A method according to Claim 1 further comprising providing the silicon subcell having a larger area than the first and second subcells such that a peripheral portion of the silicon subcell extends beyond the first and second subcells.

5. A method according to Claim 1 wherein forming the first subcell comprises forming an n/p junction within the first subcell, and wherein forming the second subcell comprises forming an n/p junction within the second subcell.

6. A method according to Claim 1 further comprising forming an n/p junction within the silicon subcell prior to bonding the second subcell to the silicon subcell.

7. A method of fabricating an inverted metamorphic multijunction (IMM) solar cell comprising:

forming a first subcell comprised of GaInP;

forming a second subcell of $In_xGa_{1-x}As$ upon the first subcell, wherein $0 \leq x \leq 0.1$, and wherein the second subcell has a smaller bandgap than the first subcell;

forming a first gridded metal layer on the second subcell;

providing a silicon subcell having a second gridded metal layer thereon;

establishing metal-to-metal bonds between the first and second gridded metal layers of the second subcell and the silicon subcell such that a plurality of spaces are defined between grids of the first and second gridded metal layers in order to space the second subcell and the silicon subcell apart from one another;

depositing an anti-reflection coating on exposed portions of the second subcell between the grids of the first gridded metal layer; and

depositing an anti-reflection coating on exposed portions of the silicon subcell between the grids of the second gridded metal layer.

8. A method according to Claim 7 wherein forming the first subcell comprises forming the first subcell upon a temporary substrate of GaAs or Ge, and wherein the method further comprises removing the temporary substrate following establishment of the metal-to-metal bonds.

9. A method according to Claim 7 further comprising forming an electrical contact on the first subcell following establishment of the metal-to-metal bonds.

10. A method according to Claim 7 wherein forming the first subcell comprises forming an n/p junction within the first subcell, wherein forming the second subcell comprises forming an n/p junction within the second subcell, and wherein providing the silicon substrate comprises forming an n/p junction within the silicon subcell prior to establishment of the metal-to-metal bonds.

11. An inverted metamorphic multijunction (IMM) solar cell comprising:

first and second subcells, wherein the first subcell is disposed upon the second subcell, and wherein the second subcell has a smaller bandgap than the first subcell;

a silicon subcell supporting the first and second subcells thereupon; ~~and~~

a metal-to-metal bond between the silicon subcell and the second subcell;

wherein a first gridded metal layer is formed on the second subcell, a second gridded metal layer is formed on the silicon subcell, and a plurality of spaces are defined between grids of the first and second gridded metal layers in order to space the second subcell and the silicon subcell apart from one another;

an anti-reflection coating is deposited on exposed portions of the second subcell between the grids of the first gridded metal layer; and

an anti-reflection coating is deposited on exposed portions of the silicon subcell between the grids of the second gridded metal layer.

12. An inverted metamorphic multijunction (IMM) solar cell according to Claim 11 wherein the metal-to-metal bond comprises a first gridded metal layer on the second subcell and a second gridded metal layer on the silicon subcell.

13. An inverted metamorphic multijunction (IMM) solar cell according to Claim 11 wherein the silicon subcell has a larger area than the first and second subcells such that a peripheral portion of the silicon subcell extends beyond the first and second subcells.

14. An inverted metamorphic multijunction (IMM) solar cell according to Claim 11 wherein the first subcell is comprised of GaInP, wherein the second subcell is comprised of $In_xGa_{1-x}As$ with $0 \leq x \leq 0.1$, and wherein each of the first subcell, the second subcell and the silicon subcell has a respective n/p junction.