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; ~~and~~

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.

~~2. A method according to Claim 1 further comprising:~~

~~forming a first gridded metal layer on the second subcell; and~~

~~forming a second gridded metal layer on the silicon subcell,~~

~~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.~~

~~3. A method according to Claim 2 further comprising:~~

~~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.~~

~~4.~~2. A method according to Claim 1 further comprising forming an electrical contact on the first subcell following removal of the temporary substrate.

~~5.~~3.A method according to Clam ~~4~~ 2 further comprising depositing an anti-reflection coating on exposed portions of the first subcell.

~~6.~~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.

~~7.~~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.

~~8.~~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.

~~9.~~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; ~~and~~

establishing metal-to-metal bonds between the first and second gridded metal layers of the second subcell and 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.

~~10.~~8. A method according to Claim ~~9~~ 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.

~~11. A method according to Claim 9 wherein providing the silicon substrate comprises forming the second gridded metal layer and depositing an anti-reflection coating on exposed portions of the silicon subcell between grids of the second gridded metal layer.~~

~~12.~~9. A method according to Claim ~~9~~ 7 further comprising forming an electrical contact on the first subcell following establishment of the metal-to-metal bonds.

~~13.~~10. A method according to Claim ~~9~~ 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.

~~14.~~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;

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

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

~~15.~~12. An inverted metamorphic multijunction (IMM) solar cell according to Claim ~~14~~ 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.

~~16.~~13. An inverted metamorphic multijunction (IMM) solar cell according to Claim ~~14~~ 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.

~~17.~~14. An inverted metamorphic multijunction (IMM) solar cell according to Claim ~~14~~ 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.