CLAIMS

1. A polymer conductor sheet comprising

   (i) a polymer sheet comprising at least two adjacent zones within the same polymer sheet, which zones run in longitudinal direction of the polymer sheet, wherein

      (1) a first zone is sufficiently ductile and/or adhesive to fix the position of an elongated conductor on its surface facing the outside of the polymer sheet, and

      (2) a second zone adjacent to the first zone that has a different degree of polymerization and/or crosslinking than the first zone, and

   (ii) at least one elongated conductor positioned on the surface of the first zone facing the outside of the polymer sheet.

2. The polymer conductor sheet of claim 1, further comprising a third zone within the same polymer sheet that has a different degree of polymerization and/or crosslinking than the second zone, wherein the third zone is located adjacent to the second zone.

3. The polymer conductor sheet of claim 2, wherein the third zone within the same polymer sheet has a lower degree of polymerization and/or crosslinking than the second zone, preferably also lower than the first zone.

4. The polymer conductor sheet of any of claims 2 and 3, wherein the first zone within the same polymer sheet has a lower degree of polymerization and/or crosslinking than the second zone and the third zone within the same polymer sheet has a lower degree of polymerization and/or crosslinking than the first zone.

5. The polymer conductor sheet of claims 1 to 4, wherein the difference in the degree of polymerization and/or crosslinking in the first, second and/or third zone is the result of one or more of the following:

   1. zone-specific irradiation, preferably electron, ion, atomic, neutron, heat or electro-magnetic irradiation,

   2. zone-specific temperature treatment,

   3. zone-specific chemical treatment

within the same polymer sheet.

6. The polymer conductor sheet of any of claims 1 to 5, wherein the first and/or third zone is/are thermoadhesive, preferably wherein the first zone is ductile and the third zone is thermoadhesive.

7. The polymer conductor sheet of any of claims 1 to 6, wherein the polymer is selected from the group consisting of thermoplasts, duroplasts, elastomers, and thermoplastic elastomers, preferably polyolefins, polyesters, polyamides, polyimides, polyacrylates, ionomers, polyvinylbutyral (PVB), silicones and polyurethanes (PU), more preferably thermoplastic polyolefins (TPO), polyolefinic elastomers (POE), thermoplastic polyurethanes (TPU), ethylene vinyl acetates (EVAs), polyethylenetetrafluoroethylene (ETFE), polyvinyl chlorides (PVCs), ionomers, polyethylene methacrylic acid (EMA) and polyethylene acrylic acid (EAA), polyethylene terephthalate (PET) and nylon, poly methyl methacrylate (PMMA), polymethacrylate (PMA), , polyvinylsilanes or any combination thereof.

8. A Device comprising a polymer conductor sheet of any of claims 1 to 7.

9. The device according to claim 8, wherein the device is a tabbed solar cell, a solar cell string, matrix or module, preferably comprising current generating elements interconnected by a polymer conductor sheet of any of claims 1 to 7

10. The device according to claim 9, wherein the solar cell module is

    (I) a solar cell module having a top and bottom side comprising:
        (a) at least two current generating elements,
        (b) at least two polymer conductor sheets,
        (c) optionally at least two encapsulant layers, and
        (d) at least two glass plates,

        wherein
        (i) at least two current generating elements (a) are conductively interconnected by the conductors of the at least two polymer conductor sheets (b) to form a solar cell string, and
        (iia) the glass plates (d) are connected to the polymer conductor sheets (b) on the top and bottom sides of the solar module, which glass plates form the outer surface of the solar cell module, or

(iib) the optional encapsulant layers (c) connect the glass plates (d) to the polymer conductor sheets (b) on the top and/or bottom side of the solar module, which glass plates form the outer surface of the solar module;

or

(II) a solar cell module having a light source-facing and a light source-averted side comprising:

(a) at least two current generating elements,

(b) at least two polymer conductor sheets,

(b2) optionally at least two encapsulant layers,

(c) a back sheet, preferably an opaque back sheet, and

(d) a glass plate,

wherein

(i) at least two current generating elements (a) are conductively interconnected by the conductors of the at least two polymer conductor sheets (b),

(ii) the back sheet (c) is connected to the polymer conductor sheet (b) on the light source-averted side of the solar module,

(iii) the glass plate (d) is connected to the polymer conductor sheet (b) on the light source-facing side of the solar module, and

(iv) the optional encapsulant layers (b2) connect the glass plate (d) and/or the back sheet (c) to the polymer conductor sheets (b) on the top and bottom side of the solar module, respectively, which glass plate and back sheet form the outer surface of the solar module;

or

(III) a solar cell module according to (I) or (II) above, further comprising at least one encapsulant layer consisting of a polymer sheet comprising at least two adjacent zones within the same polymer sheet, which zones run in longitudinal direction of the polymer sheet, wherein

(i) a first zone of the encapsulant layer is sufficiently ductile and/or adhesive to adhere to an outer layer of the solar module with its surface facing outside of the polymer sheet, and

(ii) a second zone adjacent to the first zone of the encapsulant layer that has a different degree of polymerization and/or crosslinking than the first zone.

11. Use of a polymer conductor sheet of any of claims 1 to 7 for interconnecting current generating elements in a solar cell string, matrix or module.

12. A method for producing a tabbed solar cell, a solar cell string, matrix or module, comprising the steps of:

    (i) providing a polymer conductor sheet of any of claims 1 to 7, and

    (ii) aligning and contacting the polymer conductor sheet of step (i) to at least one current generating element, and

    (iii) conductively connecting the polymer conductor sheet to the at least one current generating element, optionally under pressure and/or heat.

13. The method according to claim 12, wherein at least one polymer conductor sheet of any of claims 1 to 7 is aligned, contacted and connected to each side of at least one current generating element.

14. The method according to claim 12 or 13, wherein at least one polymer conductor sheet of any of claims 1 to 7 is aligned, contacted and connected to at least one side of at least two current generating element, thus mechanically and electrically interconnecting said elements.

15. A method ~~for~~ of forming a polymer conductor sheet according to claim 1, comprising the steps of:

    a) providing a polymerizable and/or crosslinkable sheet that can be at least partially polymerized and/or crosslinked;
    b) polymerizing and/or crosslinking the polymerizable and/or crosslinkable sheet zone-specifically to generate a first, second and/or third zone within the same polymer sheet by one or more treatments selected from the group consisting of:
    - zone-specific irradiation, preferably electron, ion, atomic, neutron, heat or electro-magnetic irradiation,
    - zone-specific temperature treatment, and
    - zone-specific chemical treatment

    within the same polymer sheet;

    c) providing an elongated conductor; and

d) positioning, preferably temporarily attaching, the elongated conductor on the surface of the first zone facing the outside of the polymer sheet.