CLAIMS:

1. An armor system comprising:

at least two overlapping armor panels each a fraction of the required 100% total armor profile for a thickness required for a designed threat,

whereby substantially all of the armor coverage area to be protected is covered by at least two layers panels of overlapping armor which individual fractional thicknesses total up to at least the required 100% armor thickness.

2. The armor system of claim 1, whereby the armored area includes redundant armor panel overlap coverage areas, where overlaps of armor panels to adjacent armor panels is a total minimum dimension required to meet or exceed at least one of; the dimension of maximum assembly elongation, and the dimension of minimum edge distance as required by armor design or armor regulations, a range of body sizes.

3. A two-dimensional armor shape for use with the armour system of claim 1, comprising; at least 3 external geometric angles, at least one internal geometric angle, a leading edge that substantially confirms to it's trailing edge, whereby the armor shape may fold on lines between geometric angles with minimal fold intersections to other fold lines between alternate geometric angles.

4. An armor panel with a two-dimensional shape for use with the armour system of claim 1, whereby an interior fold resistant area is defined by folding along at least two geometric corners, where said folding lines do not intersect other folding lines, where by the surface area in between said fold lines comprises a surface area less than 50% of the overall armor shape surface area.

5. An armor system, which comprises;

at least two armor panels,

a first attachment of each said armor panel to the base element underneath all said armor panels,

a second attachment of each said armor panel to a cover element on top of said armor panels,

whereby the first said attachment to the base element occurs at a location on each armor panel substantially opposite on each panel the location of the second attachment to the cover layer, whereby each armor panel is held outstretched and in relative position to adjacent armor panels, and the armor assembly may flex and move to substantially the extent of movement of said base and cover elastic elements

6. The armor system of claim 5, where by at least one of; the base element, the cover element, are elastic, allowing the armor system to expand to a maximum elongation and contraction of the base material and the elastic cover element

7. An armor assembly comprising;

at least three armor panels each smaller in surface area than the total surface area of the armor assembly,

at least two armor panels which at least partially overlap an adjacent armor panel, each armor panels thickness a fraction of the required total armor thickness required for a particular threat,

whereby substantially all of the armor assembly surface area has overlapped armor the sum thickness of which substantially equals the total armor thickness required for a particular threat and,

a means to hold said armor panels in relative position to one another, whereby said armor assembly has the required total armor thickness over substantially all of said armor assembly surface area and,

said individual armor panels are each fixed to the means to hold said armor panels in relative position and not fixed directly to adjacent armor panels, whereby the armor assembly remains pliable and optionally elastic.

8. A two dimensional armor shape in any preceding claim, comprising, at least 4 sides, a leading side protrusion, a trailing side recess which substantially conforms to said leading side protrusion, whereby when armor panels leading edges overlap adjacent armor panel trailing edges, the leading edges and trailing edges substantially conform to one another.

9. An armor panel with a two-dimensional shape whereby an interior fold resistant area is defined by folding along at least three geometric corners, where said folding lines do not substantially intersect other folding line(s), where by the surface area in between said fold lines comprises a fold resistant area less than 50% of the overall armor shape surface area.

10. The armor system of any preceding claim, wherein at least one of; the base element, the cover element, comprises an elastic tether extending substantially longitudinally along a portion of the armor assembly.

11. The armor system of any preceding claim, wherein elongation of the armor assembly is limited by non-elastic reinforcement elements.

12. The armor system of any preceding claim, wherein the armor panels comprise at least one of; aramid fibres, UHMWPE fibres, graphene fibres, composite laminates, metals, alloys, plastics, ceramics, resins.

13. The armor system of any preceding claim, wherein the armor panels include at least one of; hydrophobic, water resistant, flame-retardant, heat resistant elements.

14. The armor system of any of the above claims, wherein the armor system further includes netting elements to prevent ingress of small harmful organisms.

15. The armor system of claim 3, wherein each said armor panel has a thickness of at least one of; approximately 50%, 33.3%, 25%, or 20% of the total armor thickness required for the defined threat.