

CLAIMS

1. A floating apparatus for supporting solar modules, comprising
a floatation device operable to float in a water body;
5 a platform for supporting the solar modules; and
linearly adjustable support structures arranged to space the platform from the
floatation device, each support structure being independently operable to adjust a
respective relative distance between the platform and the floatation device.
- 10 2. A floating apparatus according to claim 1, wherein the floatation device includes
multiple floatation units.
3. A floating apparatus according to claim 2, wherein the floatation device further
includes connectors for joining the floatation units together.
- 15 4. A floating apparatus according to claim 3, wherein the connectors include connector
plates that are disposed on an exterior surface of the floatation units.
5. A floating apparatus according to claim 4, wherein the connector plates include
20 grooved fittings.
6. A floating apparatus according to claim 4 or 5, wherein the connector plates are
disposed on top of adjacent floatation units.

7. A floating apparatus according to any one of claims 4 to 6, wherein the connector includes connector strings that are partially embedded within the floatation units.
8. A floating apparatus according to claim 4 or 5, wherein the connector plates are
5 disposed between adjacent floatation units.
9. A floating apparatus according to any preceding claim, wherein the floatation device is donut shaped.
- 10 10. A floating apparatus according to any preceding claim, wherein the platform includes grooves configured to receive the solar modules within the grooves.
11. A floating apparatus according to claim 10, wherein the platform further includes support hooks disposed within the grooves.
- 15 12. A floating apparatus according to any preceding claim, wherein the platform is coated with a reflective material made of polytetrafluoroethylene.
13. A floating apparatus according to any preceding claim, wherein each support
20 structure includes an adjustable column, and wherein an end of the adjustable column is attached to the platform, and an opposing end of the adjustable column is attached to a respective connector interface of the floatation device.

14. A floating apparatus according to claim 13, wherein each adjustable column includes a lifting mechanism for adjusting the respective relative distance between the platform and the floatation device.

5 15. A floating apparatus according to claim 14, wherein the lifting mechanism is hydraulic powered.

16. A floating apparatus according to any one of claims 13 to 15, wherein each adjustable column further includes a damping mechanism.

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17. A floating apparatus according to claim 16, wherein the damping mechanism is a mechanical shock absorber, a hydraulic shock absorber or a combination of the mechanical shock absorber and the hydraulic shock absorber.

15 18. A floating apparatus according to any preceding claim, further comprising motion sensors for detecting wave motion, wind direction, or ship movement.

19. A floating apparatus according to any preceding claim, further comprising light sensors for detecting solar irradiation.

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20. A floating apparatus according to claim 18 or 19, further comprising a control unit configured to receive information from the sensors, and to independently operate each support structure to adjust a respective relative distance between the platform and the floatation device based on the information received.

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21. A floating apparatus according to any preceding claim, further comprising an energy storage device for storing electrical energy produced by the solar modules.

22. A floating apparatus according to any preceding claim, further comprising solar
5 modules.

23. A method of operating a floating apparatus for supporting solar modules, the floating apparatus including a floatation device operable to float in a water body, a platform for supporting the solar modules, and linearly adjustable support structures
10 arranged to space the platform from the floatation device, the method comprising independently operating each support structure to adjust a respective relative distance between the platform and the floatation device.