CLAIMS

1. A method for measuring a photoluminescence response from an object, the method comprising the steps of:

(i) exposing the object to solar irradiation to generate photoluminescence from the object; and

(ii) measuring, with a detector, a signal from the object in a spectral band corresponding to an atmospheric absorption band of the solar irradiation, selected such that at least 20% of the signal reaching the detector comprises photoluminescence generated from the object by the solar irradiation,

wherein the object comprises a photovoltaic module comprising a plurality of silicon photovoltaic cells.

2. The method according to claim 1, wherein the spectral band is selected such that at least 50% of the measured signal comprises photoluminescence generated from the object by the solar irradiation.

3. The method according to claim 2, wherein the spectral band is selected such that at least 80% of the measured signal comprises photoluminescence generated from the object by the solar irradiation.

4. The method according to claim 1, wherein the spectral band has a centre wavelength in the range 1122 to 1130 nm or in the range 1134 to 1136 nm.

5. The method according to claim 1, wherein the spectral band has a FWHM bandwidth of 3.0 nm or less.

6. The method according to claim 5, wherein the spectral band has a FWHM bandwidth of 2.0 nm or less.

7. The method according to claim 6, wherein the spectral band has a FWHM bandwidth of 1.0 nm or less.

8. The method according to claim 7, wherein the spectral band has a FWHM bandwidth of 0.6 nm or less.

9. The method according to claim 1, wherein the spectral band has a centre wavelength in the range 1367 to 1372 nm, or in the range 1380 to 1383 nm, or in the range 1830 to 1880 nm.

10. The method according to claim 1, wherein the spectral band is provided by a bandpass filter.

11. The method according to claim 10, wherein the temperature of the bandpass filter is maintained within a predetermined temperature range.

12. The method according to claim 10, wherein the temperature of the bandpass filter is controlled to tune the centre wavelength of the bandpass filter.

13. The method according to claim 1, further comprising the step of interpreting the measured signal to obtain information on one or more properties of the object.

14. The method according to claim 1, wherein the detector is an image capture device.

15. An apparatus for measuring a photoluminescence response from an object exposed to solar irradiation, the apparatus comprising a measurement system having a detector configured to measure a signal from the object exposed to solar irradiation, the signal being measured in a spectral band corresponding to an atmospheric absorption band of the solar irradiation, selected such that at least 20% of the signal reaching the detector comprises photoluminescence generated from the object by the solar irradiation, wherein the object comprises a photovoltaic module comprising a plurality of silicon photovoltaic cells.

16. The apparatus according to claim 15, wherein the spectral band is selected such that at least 50% of the measured signal comprises photoluminescence generated from the object by the solar irradiation.

17. The apparatus according to claim 16, wherein the spectral band is selected such that at least 80% of the measured signal comprises photoluminescence generated from the object by the solar irradiation.

18. The apparatus according to claim 15, wherein the spectral band has a centre wavelength in the range 1122 to 1130 nm or in the range 1134 to 1136 nm.

19. The apparatus according to claim 15, wherein the spectral band has a FWHM bandwidth of 3.0 nm or less.

20. The apparatus according to claim 19, wherein the spectral band has a FWHM bandwidth of 2.0 nm or less.

21. The apparatus according to claim 20, wherein the spectral band has a FWHM bandwidth of 1.0 nm or less.

22. The apparatus according to claim 21, wherein the spectral band has a FWHM bandwidth of 0.6 nm or less.

23. The apparatus according to claim 15, wherein the spectral band has a centre wavelength in the range 1367 to 1372 nm, or in the range 1380 to 1383 nm, or in the range 1830 to 1880 nm.

24. The apparatus according to claim 15, wherein the measurement system comprises a bandpass filter for providing the spectral band.

25. The apparatus according to claim 24, wherein the measurement system comprises a temperature controller for maintaining the temperature of the bandpass filter within a predetermined temperature range, or for tuning the centre wavelength of the bandpass filter.

26. The apparatus according to claim 15, further comprising a computer for interpreting the measured signal to obtain information on one or more properties of the object.

27. The apparatus according to claim 15, wherein the detector comprises an image capture device.