Claims:

1. A method for adjusting the temperature of a sample, the method comprising the steps of:

    a. Heating a substrate with a laser diode light; said light projected on to the substrate to absorb the light and convert the light energy to thermal energy thereby raising the temperature of the substrate corresponding to the intensity of the light energy; and

    b. Rotating the substrate to transfer the thermal energy substantially homogenously to the sample,

    wherein a portion of the substrate that comes into contact with the light has an emissivity value of larger than 0.9.

2. The method of claim 1 wherein the portion of the substrate that comes into contact with the light has an emissivity value substantially equal to 1.0.

3. The method of claim 2 wherein the portion of the substrate that comes into contact with the light is black.

4. The method of claim 1 wherein a portion of the substrate that does not come into contact with the light has an emissivity value less than 0.9.

5. The method of claim 4 wherein the portion of the substrate that does not come into contact with the light is non-black.

6. The method of any one of claims 1 to 5 further comprising the step of;

    Removing the light energy from the substrate to lower its temperature and maintaining the substrate to a new temperature.

7. The method of claim 6 further comprising the step of actively cooling the substrate.

8. The method of any one of claims 1 to 7 further comprising the step of;

    detecting the temperature of the substrate via a sensor not in contact with the substrate

9. The method of any one of claims 1 to 8 further comprising the step of detecting a signal from the sample via a sensor.

10. The method of any one of claims 1 to 9 wherein the sample is a nucleic acid sample.

11. The method of any one of claims 1 to 10 further comprising of two or more laser diode light sources.

12. The method of any one of claims 1 to 11 further comprising the step of optical manipulation of the light by focusing, collimating, splitting, diffracting, switching or reflecting to generate multiple beamlets spatially distributed and directed on to the substrate .

13. A device for adjusting the temperature of a sample, the device comprising: a laser diode for projecting a light to a substrate; said light adapted to be projected substantially homogeneously on to the substrate to absorb and convert the light energy to thermal energy thereby raising the temperature of the substrate corresponding to the intensity of the light energy, wherein the substrate is configured to rotate to transfer the thermal energy substantially homogenously to the sample and wherein a portion of the substrate that comes into contact with the light has an emissivity value of larger than 0.9.

14. The device of claim 13 wherein the portion of the substrate that comes into contact with the light has an emissivity value substantially equal to 1.0.

15. The device of claim 14 wherein the portion of the substrate that comes into contact with the light is black.

16. The device of claim 13 wherein a portion of the substrate that does not come into contact with the light has an emissivity value less than 0.9.

17. The device of claim 16 wherein the portion of the substrate that does not come into contact with the light is non-black.

18. The device of any one of claims 13 to 17 wherein the substrate is in the form of a band.

19. The device of any one of claims 13 to 17 wherein the substrate is in the form of a foam.

20. The device of any one of claims 13 to 19 wherein the substrate is made of metals, alloys, metal composites or polymers.

21. The device of any one of claims 13 to 17 wherein the substrate is in the form of particles within the sample.

22. The device of claim 21 wherein the particles comprise a quantum dot.

23. The device of claim 21 wherein the particles comprise a magnetic particle.

24. The device of claim 21 wherein the particles comprise a photosensitizer.

25. The device of any one of claims 13 to 24 further comprising one or more optical elements selected from a beam splitter, a diffractive optical element, a mirror, a lens, a light guide or an optical switch is positioned in the path of a light beam between the laser diode and the substrate.

26. The device of any one of claims 13 to 25 further comprising a fan or a blower to remove thermal energy from the substrate.

27. The device of claim 13 further comprising a signal processor for detecting a signal of the sample being analyzed.

28. The device of any one of claims 13 to 27 further comprising a portable battery.

29. The device of any one of claims 13 to 28 wherein the substrate comprises two or more substrates.

30. The device of any one of claims 13 to 29 further comprising a temperature sensor not in contact with the substrate.

31. A method for amplifying and/or analyzing a nucleic acid sample, the method comprising the steps of:

    a. placing the nucleic acid sample in contact with a substrate;

    b. heating the substrate to a first temperature and maintaining the first temperature with a laser diode light source; said light projected on the substrate to absorb the light and convert the light energy to thermal energy thereby raising the temperature of the substrate corresponding to the intensity of light energy;

    c. rotating the substrate to transfer the thermal energy substantially homogenously to the nucleic acid sample;

    d. lowering the temperature of the substrate to a second temperature and maintaining the substrate at the second temperature; and

e. detecting a fluorescence signal of the nucleic acid sample,

wherein a portion of the substrate that comes into contact with the light has an emissivity value of larger than 0.9.

32. The method of claim 31 wherein the portion of the substrate that comes into contact with the light has an emissivity value substantially equal to 1.0.

33. The method of claim 31 wherein a portion of the substrate that does not come into contact with the light has an emissivity value less than 0.9.

34. The method of claim 31 wherein more than one nucleic acid sample is amplified.

35. The method of claim 31 wherein the thermal cycle comprises real time polymerase chain reaction to amplify the nucleic acid sample.

Claims:

1. A method for adjusting the temperature of a sample, the method comprising the steps of:

   a. Heating a substrate with a laser diode light; said light projected on to the substrate to absorb the light and convert the light energy to ~~a heat~~ thermal energy thereby raising the temperature of the substrate corresponding to the -intensity of the light energy; and

   ~~a.~~b. Rotating, the substrate ~~configured~~ to transfer the thermal energy substantially homogenously to the sample,

   wherein a portion of the substrate that comes into contact with the light has an emissivity value of larger than 0.9.

2. The method of claim 1 wherein the portion of the substrate that comes into contact with the light has an emissivity value substantially equal to 1.0.

3. The method of claim 2 wherein the portion of the substrate that comes into contact with the light is black.

4. The method of claim 1 wherein a portion of the substrate that does not come into contact with the light has an emissivity value less than 0.9.

5. The method of claim 4 wherein the portion of the substrate that does not come into contact with the light is non-black.

~~2~~6. The method of any one of claims 1 to 5 further comprising the step of;

   Removing the light energy from the substrate to lower its temperature and maintaining the substrate to a new temperature.

~~3~~7. The method of claim ~~2~~6 further comprising the step of actively cooling the substrate.

~~4~~8. The method of any one of claims 1 to ~~3~~7 further comprising the step of;

   detecting the temperature of the substrate via a sensor not in contact with the substrate

~~5~~9. The method of any one of claims 1 to ~~4~~8 further comprising the step of detecting a signal from the sample via a sensor.

~~6~~10. The method of any one of claims 1 to ~~5~~ 9 wherein the sample is a nucleic acid sample.

~~7~~11. The method of any one of claims 1 to ~~6~~ 10 further comprising of two or more laser diode light sources.

~~8. The method of any one of claims 1 to 7 wherein the substrate is configured to rotate~~

~~9~~12. The method of any one of claims 1 to ~~8~~ 11 further comprising the step of optical manipulation of the light by focusing, collimating, splitting, diffracting, switching or reflecting to generate multiple beamlets spatially distributed and directed on to the substrate .

~~10~~13. A device for adjusting the temperature of a sample, the device comprising: a laser diode for projecting a light to a substrate; said light adapted to be projected substantially homogeneously on to the substrate to absorb- and convert the light energy to ~~heat~~ thermal energy thereby raising the temperature of the substrate corresponding to the intensity of the light energy, wherein the substrate is configured to rotate to transfer the thermal energy substantially homogenously to the sample~~.~~ and wherein a portion of the substrate that comes into contact with the light has an emissivity value of larger than 0.9.

~~11. The device of claim 10 wherein a portion of the substrate that comes into contact with the light has high emissivity.~~

14. The device of claim 13 wherein the portion of the substrate that comes into contact with the light has an emissivity value substantially equal to 1.0.

~~12~~15. The device of claim ~~10~~ 14 wherein ~~a~~ the portion of the substrate that comes into contact with the light ~~-~~is black.

16. The device of claim 13 wherein a portion of the substrate that does not come into contact with the light has an emissivity value less than 0.9.

~~13~~17. The device of claim ~~12~~ 16 wherein ~~a~~ the portion of the substrate that does not come into contact with the light is non-black.

~~14. The device of claim 10 to 13 wherein the substrate is made of a material with low density, low specific heat capacity, high thermal conductivity or high absorption coefficient.~~

~~15~~18. The device of any one of claims ~~10~~ 13 to ~~14~~ 17 wherein the substrate is in the form of a band.

~~16~~19. The device of any one of claims ~~10~~ 13 to ~~14~~ 17 wherein the substrate is in the form of a foam.

~~17~~20. The device of any one of claims ~~10~~ 13 to ~~16~~ 19 wherein the substrate is made of metals, alloys, metal composites or ~~thermally conductive~~ polymers.

~~18~~21. The device of any one of claims ~~14~~ 13 to 17 wherein the substrate is in the form of particles within the sample.

~~19~~22. The device of claim ~~18~~ 21 wherein the particles comprise a quantum dot.

~~20~~23. The device of claim ~~18~~ 21 wherein the particles comprise a magnetic particle.

~~21~~24. The device of claim ~~18~~ 21 wherein the particles comprise a photosensitizer.

~~22~~25. The device of any one of claims ~~10~~ 13 to ~~21~~ 24 further comprising one or more optical elements selected from a beam splitter, a diffractive optical element, a mirror, a lens, a light guide or an optical switch is positioned in the path of a light beam between the laser diode and the substrate.

~~23~~26. The device of any one of claims ~~10~~ 13 to ~~22~~ 25 further comprising a fan or a blower to remove thermal energy from the substrate.

~~24~~27. The device of claim ~~10~~ 13 further comprising a signal processor for detecting a signal of the sample being analyzed.

~~25~~28. The device of any one of claims ~~10~~ 13 to ~~24~~ 27 further comprising a portable battery.

~~26~~29. The device of any one of claims ~~10~~ 13 to ~~25~~ 28 wherein the substrate comprises two or more substrates.

~~27~~30. The device of any one of claims ~~10~~ 13 to ~~26~~ 29 further comprising a temperature sensor not in contact with the substrate.

~~28~~31. A method for amplifying and/or analyzing a nucleic acid sample~~-~~, the method comprising the steps of:

a. placing the nucleic acid sample in contact with a substrate;

b. heating the substrate to a first temperature and maintaining the first temperature with a laser diode light source; said light projected on the substrate to absorb the light and convert the light energy to ~~heat~~ thermal energy thereby raising the temperature of the substrate corresponding to the intensity of light energy~~,~~;

~~b.~~c. rotating the substrate ~~configured~~ to transfer the thermal energy substantially homogenously to the nucleic acid sample;

~~c.~~d. lowering the temperature of the substrate to a second temperature and maintaining the substrate at the second temperature; and

~~d.~~e. detecting a fluorescence signal of the nucleic acid sample~~,~~.

wherein a portion of the substrate that comes into contact with the light has an emissivity value of larger than 0.9.

32. The method of claim 31 wherein the portion of the substrate that comes into contact with the light has an emissivity value substantially equal to 1.0.

33. The method of claim 31 wherein a portion of the substrate that does not come into contact with the light has an emissivity value less than 0.9.

~~29~~34. The method of claim ~~28~~ 31 wherein more than one nucleic acid sample is amplified.

~~30~~35. The method of claim ~~28~~ 31 wherein the thermal cycle comprises real time polymerase chain reaction to amplify the nucleic acid sample.