

WHAT IS CLAIMED IS:

1. Apparatus comprising:
a signal processor or processing module configured to:
receive signaling containing information about light reflected off
5 suspended matter in a liquid and sensed by a linear sensor array having rows
and columns of optical elements; and
determine corresponding signaling containing information about a
concentration of a parameter of the liquid, based upon the signaling received
- 10 2. Apparatus according to claim 1, wherein the parameter is turbidity of the
liquid.
3. Apparatus according to claim 1, wherein the apparatus comprises the linear
sensor array.
- 15 4. Apparatus according to claim 3, wherein the linear sensor array comprises
a linear photodiode array.
5. Apparatus according to claim 3, wherein the linear sensor array comprises
20 a linear CCD array.
6. Apparatus according to claim 3, wherein the linear sensor array comprises
a linear CMOS array.

7. Apparatus according to claim 3, wherein the linear sensor array comprises a closed cylinder sensor array having a three-dimensional cylindrical array of the rows and columns of the optical elements.

5 8. Apparatus according to claim 1, wherein the apparatus is a turbidity sensor.

9. Apparatus according to claim 1, wherein the apparatus comprises a quasi-collimated light source having a length and being configured to provide the light, including quasi-collimated light, along a corresponding length of the linear sensor
10 array.

10. Apparatus according to claim 1, wherein the signal processor or processing module is configured to determine the parameter based upon an attenuation of an optical signal sensed across the linear sensor array, including
15 along the length and width of the linear sensor array.

11. Apparatus according to claim 1, wherein the linear sensor array comprises a two-dimensional array of the optical elements that are individually addressable.

20 12. Apparatus according to claim 2, wherein the signal processor or processing module is configured to determine the turbidity based upon a spatial gradient of an optical signal sensed across the linear sensor array that contains information about the concentration of the turbidity.

13. Apparatus according to claim 12, wherein the optical elements are individually addressable by the signal processor or processing module.

14. Apparatus according to claim 12, wherein
5 either the rows or the columns of the optical elements are connected in parallel and addressable by the signal processor or processing module;
the apparatus may include a transmission photodiode located at an end of the linear sensor array, opposite the light source, configured to respond to the light reflected off the suspended matter and provide transmission photodiode signaling
10 containing information about the same; and
the signal processor or processing module may be configured to receive the photodiode signaling and correct the corresponding signaling for drift or the inner filter effect.

15 15. A method comprising:
receiving, with a signal processor or processing module, signaling containing information about light reflected off suspended matter in a liquid and sensed by a linear sensor array having rows and columns of optical elements; and
determining, with the signal processor or processing module, corresponding
20 signaling containing information about a concentration of a parameter of the liquid, based upon the signaling received

16. A method according to claim 15, wherein the parameter is turbidity of the liquid.

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17. A method according to claim 15, wherein the method comprises configuring the linear sensor array as a linear photodiode array, a linear CCD array or a linear CMOS array.

5 18. A method according to claim 15, wherein the method comprises configuring the linear sensor array as a closed cylinder sensor array having a three-dimensional cylindrical array of the rows and columns of the optical elements.

19. A method according to claim 15, wherein the method comprises
10 determining the parameter based upon an attenuation of an optical signal sensed across the linear sensor array.

20. A method according to claim 15, wherein the method comprises configuring a light source to provide the light, including using a quasi-collimated light
15 source to provide quasi-collimated light.

21. A turbidity sensor comprising:

a quasi-collimated light source having a length and being configured to provide quasi-collimated light to a liquid sample;

5 a linear sensor array having rows and columns of optical elements and configured to sense light reflected off suspended matter in the liquid sample along the length of the collimated light source and provide signaling containing information about the light reflected off the suspended matter; and

a signal processor or processing module configured to:

receive the signaling; and

10 determine corresponding signaling containing information about a concentration of turbidity of the liquid, based upon the signaling received

22. A turbidity sensor according to claim 21, wherein the linear sensor array comprises a linear photodiode array, a linear CCD array, or a linear CMOS array.

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23. A turbidity sensor according to claim 21, wherein the signal processor or processing module is configured to determine the turbidity based upon an attenuation of an optical signal sensed across the linear sensor array, including along the length and width of the linear sensor array.

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24. A turbidity sensor according to claim 21, wherein the signal processor or processing module is configured to determine the turbidity based upon a spatial gradient of an optical signal sensed across the linear sensor array that contains information about the concentration of the turbidity.

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