

What is claimed is:

1. A method for determining a detector gain correction factor for application to flow cytometer data, the method comprising:
 - detecting light with a light detection system across a horizontal axis of a flow stream perpendicular to the flow direction of the flow stream;
 - generating data signals in a photodetector channel of the light detection system at a plurality of positions across the horizontal axis of the flow stream; and
 - calculating a detector gain correction factor for application to flow cytometer data for each position across the flow stream in response to the generated data signals.
2. The method according to claim 1, wherein the method comprises determining at each position across the flow stream one or more of:
 - an intensity of the generated data signals;
 - a peak pulse amplitude of the generated data signals; or
 - a pulse area of the generated data signals.
3. The method according to claim 2, wherein the method further comprises calculating a robust coefficient of variation (rCV) based on the determined data signal intensity at each position across the flow stream.
4. The method according to any one of claims 1-3, wherein the method comprises:
 - generating data signals in an imaging photodetector channel of the light detection system at a plurality of pixel locations across the flow stream; and
 - calculating a detector gain correction factor for each pixel location across the flow stream in response to the generated data signals.

5. The method according to any one of claims 1-4, wherein the method further comprises generating a detector gain correction factor data file comprising the calculated detector gain correction factors for each position across the flow stream.

5 6. The method according to claim 1, wherein the data signals used to calculate the detector gain correction factors are generated in an imaging photodetector channel of the light detection system, and

wherein the calculated detector gain correction factors are for application to data signals generated in one or more non-imaging photodetector channels of the
10 light detection system.

7. A particle analyzer comprising:

a light detection system comprising an imaging photodetector, wherein the light detection system is configured to:

15 detect light across a horizontal axis of a flow stream perpendicular to the flow direction of the flow stream;

generate data signals in a photodetector channel of the light detection system at a plurality of positions across the horizontal axis of the flow stream; and

20 a processor comprising memory operably coupled to the processor wherein the memory comprises instructions stored thereon, which when executed by the processor, cause the processor to calculate a detector gain correction factor for application to flow cytometer data for each position across the flow stream in response to the generated data signals.

25 8. The particle analyzer according to claim 7, wherein the memory comprises instructions for determining at each position across the flow stream one or more of:

an intensity of the generated data signals;

a peak pulse amplitude of the generated data signals; or
a pulse area of the generated data signals.

9. The particle analyzer according to any one of claims 7-8, wherein the
5 memory comprises instructions for calculating a robust coefficient of variation (rCV) based on the determined data signal intensity at each position across the flow stream.

10. The particle analyzer according to any one of claims 7-9, wherein the light
10 detection system is configured to generate data signals in an imaging photodetector channel of the light detection system at a plurality of pixel locations across the flow stream; and

the memory includes instructions for calculating a detector gain correction factor for each pixel location across the flow stream in response to the generated
15 data signals.

11. The particle analyzer according to any one of claims 7-10, wherein the memory comprises instructions for generating a detector gain correction factor data file comprising the calculated detector gain correction factors for each position
20 across the flow stream.

12. The particle analyzer according to claim 7, wherein the data signals used to calculate the detector gain correction factors are generated in an imaging photodetector channel of the light detection system, and
25 wherein the calculated detector gain correction factors are for application to data signals generated in one or more non-imaging photodetector channels of the light detection system.

13. A non-transitory computer readable storage medium comprising instructions stored thereon for determining a detector gain correction factor for application to flow cytometer data, the instructions comprising:

algorithm for detecting light with a light detection system across a horizontal axis of a flow stream perpendicular to the flow direction of the flow stream;

algorithm for generating data signals in a photodetector channel of the light detection system at a plurality of positions across the horizontal axis of the flow stream; and

algorithm for calculating a detector gain correction factor for application to flow cytometer data for each position across the flow stream in response to the generated data signals.

14. The non-transitory computer readable storage medium according to claim 13, wherein the non-transitory computer readable storage medium comprises algorithm for determining at each position across the flow stream one or more of:

an intensity of the generated data signals;

a peak pulse amplitude of the generated data signals; or

a pulse area of the generated data signals.

15. The non-transitory computer readable storage medium according to any one of claims 13-14, wherein the non-transitory computer readable storage medium comprises:

algorithm for generating data signals in an imaging photodetector channel of the light detection system at a plurality of pixel locations across the flow stream; and

algorithm for calculating a detector gain correction factor for each pixel location across the flow stream in response to the generated data signals.

16. The non-transitory computer readable storage medium according to any one of claims 13-15, wherein the non-transitory computer readable storage

medium comprises algorithm for generating a detector gain correction factor data file comprising the calculated detector gain correction factors for each position across the flow stream.

- 5 17. The non-transitory computer readable storage medium according to claim 13, wherein the data signals used to calculate the detector gain correction factors are generated in an imaging photodetector channel of the light detection system, and

10 wherein the calculated detector gain correction factors are for application to data signals generated in one or more non-imaging photodetector channels of the light detection system.

18. An integrated circuit programmed for processing flow cytometer data, the programming comprising algorithm for applying a detector gain correction factor to data signals from a photodetector channel of a light detection system, wherein the detector gain correction factor is calculated by:

generating data signals in an imaging photodetector channel of the light detection system at a plurality of positions across a horizontal axis of a flow stream perpendicular to the flow direction of the flow stream; and

- 20 calculating a detector gain correction factor for application to flow cytometer data for each position across the horizontal axis of the flow stream in response to the generated data signals.

- 25 19. The integrated circuit according to claim 18, wherein the data signals used to calculate the detector gain correction factors are generated in an imaging photodetector channel of the light detection system, and

wherein the calculated detector gain correction factors are for application to data signals generated in one or more non-imaging photodetector channels of the light detection system.