

## ***Interactive comment on “A new model for the simplification of particle counting data” by M. F. Fadal et al.***

**Anonymous Referee #2**

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### General comments

The paper describes a curve fitting method to describe multi channel particle counts. It extends on earlier work of Ceronio et al and the model discussed is the so-called Ceronio model. The goal of the curve fitting is to interpret large data sets of particle counts in a comprehensive way.

The paper clearly and instructively describes the essentials of the curve fitting and explains the benefits above other models like the power law and variable-b model. The curve fitting is based on a mathematical description of the particle size distribution within a sample of water and is not based on a physical theory on this. I think that should be mentioned a bit more clear in the paper and the abstract.

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### Specific comments

In the end of section 5 on Typical parameters (line 25 and further on page 157) there is an interpretation and suggestion to extrapolate the curve beyond the measured data. This is typically not possible with this model and should be commented on. It assumes that the curve fitting has a physical meaning and unless this is demonstrated with other measurements, that cannot be said here.

In section 6 with the examples in line 11 there is an indication of the 2-20 micrometers; the caption of fig 11 shows 1-10 micrometer: Which is true?

Figure 12 is given, but not mentioned or discussed in the paper, which is a pity. This application on particle volume is extremely interesting as it could have a relation with the more commonly measured turbidity. It also has the potential to summarize the multiple channel particle counters into 1 parameter that has a multi-layer build up. The interpretation of particle volume is 'quick and dirty' and can be deepened by the further analysis of the underlying channel-count data.

An obvious advantage of the curve fitting is not discussed to my opinion and that is the comparison of multiple particle counters. Mostly particle counters are bought over some time and from several brands. The channel number and boundaries often deviate, making comparisons other than just numbers difficult. With ongoing price cuts, particle counters come in the range of turbidimeters. This application could make the particle counters usable for direct interpretation on the specific model parameters like turbidimeters are used, but with the advantage of much more information.

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Interactive comment on Drink. Water Eng. Sci. Discuss., 4, 151, 2011.

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