

Interactive comment on “Development of a bioaerosol single particle detector (BIO IN) for the fast ice nucleus chamber FINCH” by U. Bundke et al.

Anonymous Referee #1

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General comments:

The idea to detect biological ice nuclei in the manner here proposed has a great deal of merit. When fully developed, the information gained will, no doubt, be of great interest. The initial results are also encouraging. One may question whether this report is based on sufficient testing. Certainly true that only a minimal amount of test results are being presented. It is hard to imagine that no more tests were done, and that only the two most successful ones are included. Once set up and working, why were only 709 particles counted from the ambient aerosol?

As a detector of biological particles, could it be compared with other methods? Since

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bacteria, or their fragments, are of special interest as IN, can anything be said, and tested, that would show the detection probability for them?

Once coupled to FINCH, what additional factors come into play? Will ice covering on the particles change the detection probability and size thresholds?

Minor points:

page/line

2404/16 Why are aerosols like ammonium sulfate not mentioned? 2404/22 "heterogeneous freezing process" is not a good choice of words; nucleation is heterogeneous, not the process of freezing 2406/12 'instrument' chamber (not 'instruments') 2406/18 2 mm refers to the diameter of the outlet? 2407/6 Isn't "broad-band" and "narrow-band" the more usual expressions for "long pass" and "short pass"?

2407/8 No text refers to this equation. 2407/16 'perpendicular', not 'rectangular' 2408/6 'sampling' rather than 'probing' 2408/14 lower case "l" as symbol for liter is easily mis-read 2408/15-17 Two sentences are redundant for this content. 2408/18 Strictly speaking, the figure shows a graph not a "snapshot of two particles" 2409/2-8 More quantitative information here would be helpful. Was there only one test made? How many particles counted? How reproducible are the results from one test to another? How broad were the distributions? 2409/20-22 Why assume that the bio-particles were the largest ones? This is not necessarily so. 2409/26 The meaning of PD and PM in Fig 8 is not given. 2410/4 There is a promise of that but it may be too early to talk about an "important contribution".

Interactive comment on Atmos. Meas. Tech. Discuss., 2, 2403, 2009.

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