

## ***Interactive comment on “Stack emission monitoring using non-dispersive infrared with optimized nonlinear absorption cross-interference correction algorithm” by Y.-W. Sun et al.***

### **Anonymous Referee #1**

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The paper by Sun et al. presents a method to correct for cross-interference in multi-channel non-dispersive infrared measurements which accounts for nonlinear absorption. I consider the paper as scientifically relevant, and its content seems convincing and conclusive to me (I must, however, admit that I am not an expert in this particular field, and I might have missed the one or the other issue). There are, however, several presentation issues:

1. There are several language issues (missing articles, wrong order of words, singular/plural issues etc). Since to my knowledge each paper will undergo routine language editing, I will not list all corrections here.

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2. The abstract is full of advertising terms ("optimized", "newly developed" etc). The excessive use of such terms should be avoided.

3. Various places: "three order" should be replaced by "third order".

4. It should be stated early in the paper (and possibly also in the abstract) that this is an in situ method, not a remote sensing method.

5. Many parts of the text refer to particular models of a particular manufacturer. Thus this paper in many places reads like a technical report. I would prefer that references to particular instruments of a particular manufacturer are kept at an absolute minimum, and whenever the method can be described in a more generic style, these references should be avoided. Perhaps the references to the manufacturers' models can be limited to Section 4 ff. 6.p2011, l28/29: the text in the parantheses is confusing. I suggest "(i.e. the absorption is no longer linear to the concentration)"

7. The concept of the relative measurement error is certainly much older than the references given, and it is pretty standard. I think that no references are needed for this definition.

8. p2018 bottom: The correlation coefficient usually is  $r$ , not the square of it.

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Interactive comment on Atmos. Meas. Tech. Discuss., 6, 2009, 2013.

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