Reviewer's report

Title: A stable pattern of EEG spectral coherence distinguishes children with autism from neuro-typical controls A large case control study

Version: 2 Date: 20 April 2012

Reviewer: Hernando Ombao

Reviewer's report:

The paper is substantially improved.

On a minor point, I strongly suggest that the authors stick to the technically accepted definitions of coherency and coherence rather than attempt to make their own definition of these important measures. First, COHERENCY is the ratio of the cross-spectrum to the square-root of the product of the two auto-spectra. It is a complex-valued quantity. Second, COHERENCE is the square modulus of coherency. It takes on a value between 0 and 1.

The procedure for artifact rejection remains unclear. The authors discuss a number of items that I am trying to piece together. First, they mention the term "multivariate regression". Second, they mention the different spectral components from the different channels. However, the authors did not explicitly state what they do exactly to remove the artifacts. My own guess is this: (1.) First fit a linear regression model to each channel where the dependent variables are the EEG series and the independent variables are the different spectral components; (2.) Second extract the residuals which now represent the EEGs with artifacts removed and finally (3.) use these residuals in subsequent coherence analysis.

If my guess is correct, then I would say that the procedure is statistically justifiable. If my guess is not correct, then the authors should write this portion of the manuscript very clearly and I would be happy to review.

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

- Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this paper, either now or in the future? NO

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