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Magn. Reson. Discuss., referee comment RC1
https://doi.org/10.5194/mr-2021-59-RC1, 2021

Comment on mr-2021-59

Anonymous Referee #1

Referee comment on "NUScon: a community-driven platform for quantitative evaluation of nonuniform sampling in NMR" by Yulia Pustovalova et al., Magn. Reson. Discuss., https://doi.org/10.5194/mr-2021-59-RC1, 2021

This is a well-timed report on a much needed community effort to pin down the best practices for the evaluation of NUS reconstruction algorithms. Although this is just the first iteration of this competition, it already shows immense promise to evaluate different algorithms in a consistent and fair manner. The proteins chosen for the evaluations are appropriate, and I covers many use cases. The spectra chosen are also appropriate and provide a fair bit of insight into the efficiency of the reconstructed sequences. In any case, I guess these are subject to change for future competitions if other use cases are to be tackled. I have only a few minor comments after which I would recommend publication of this article:

1. There is a large difference in the evaluation times for protein A and B, although the latter is substantially larger in size. Is this because of the difference in the submissions for this entry, or does this have something to do with the dispersion/dynamic range in the spectra for these proteins? The data in Table 5 would benefit from more context as to where the timing differences come from.

2. It would be good to have a single figure with side-by-side comparisons of the 15N-1H HSQC for all the three proteins for the reader to better evaluate the case studies.

3. The data hosted on NMRBOX currently lack access to the 'submissions' folder. I would strongly urge the authors to try and make this public as well. Many of the software packages explored here come with several settings and parameters that may not be obvious to a new user. The scripts that some of the leading experts in the field have devised for these problems will surely be of a great value to the community, the manuals and tutorials for these packages notwhithstanding.

4. Fig 3 has poor resolution and should be replaced.