

Magn. Reson. Discuss., referee comment RC2
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Comment on mr-2021-23

Eduard Chekmenev (Referee)

Referee comment on "Determination of hydrogen exchange and relaxation parameters in PHIP complexes at micromolar concentrations" by Lisanne Sellies et al., Magn. Reson. Discuss., <https://doi.org/10.5194/mr-2021-23-RC2>, 2021

This manuscript is a great contribution from the team of the leader in the field of NMR hyperpolarization, Prof. Tessari. They have pioneered the use of SABRE technique for enhancing NMR signals for the purpose of analytical quantification of dilute compounds (e.g., metabolites). This manuscript serves really several purposes. For one, it validates why their approach works. Second, it provides a convenient approach to measure the hydrogen exchange and relaxation parameters in SABRE-related complexes. This information is of great importance in the context of technique optimization either to achieve the best spectral resolution or to boost signal enhancements of SABRE-hyperpolarized resonances. As noted by the other referee, the manuscript is well written. I completely agree. Moreover, the manuscript is certainly a great fit for the special issue. I am sure the rapidly growing community of parahydrogen NMR researchers will greatly enjoy reading this research contribution. However, some of these researchers definitely would like to establish this sequence on their NMR spectrometers. To facilitate better sharing of the best laboratory practices, I would suggest to make the sequence readily available to the reader – perhaps through Mendeley or other options. This way, the sequence could be readily implemented by others. This is obviously a very minor suggestion, which I leave completely to the choice of the co-authors. My second suggestion is related to the experimental setup they have employed. It would be great to have a schematic (e.g., Scheme 1) providing the details of their experimental setup, and which lines of the NMR spectrometer, they have employed to actuate the valves. Details of the experimental setup would greatly help to disseminate their clever approach to the hands of other researchers. Additional review of this manuscript is not required.