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Magn. Reson. Discuss., referee comment RC1
https://doi.org/10.5194/mr-2021-11-RC1, 2021

Comment on mr-2021-11

Anonymous Referee #1

Referee comment on "Overhauser dynamic nuclear polarization (ODNP)-enhanced two-dimensional proton NMR spectroscopy at low magnetic fields" by Timothy J. Keller and Thorsten Maly, Magn. Reson. Discuss., https://doi.org/10.5194/mr-2021-11-RC1, 2021

The authors present an important topic for Magnetic Resonance, the development of a new method in the area of 2D NMR-DNP to study liquid samples. They demonstrate clearly the newly developed approach for compact low field spectrometers. They solve a systematic problem, significant field drift, common with permanent magnets used in NMR spectrometers. Also, it is appreciated and important for the NMR community that their code is easily accessible. Finally, I recommend that the submitted paper be published with minor corrections. See below.

Possible corrections:

line 152: do you mean Tecmag, not Techmag, correct?

In Figure 4a, shouldn’t the x-axis be labeled “J-coupling (Hz)”?

Suggested comments to address:

It seems from the technical details that 2D acquisitions presented took about 30 mins. What are the limitations of the proposed method? Could it be applied to non-monotonic drift? Could the method be applied for much longer acquisition times particularly when the samples are not neat compounds?

What applications would benefit most from such instrument/method? Compared to more traditional compact NMR spectrometers?