Magn. Reson. Discuss.,
https://doi.org/10.5194/mr-2020-13-SC2, 2020

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Interactive comment on "DeerLab: A comprehensive toolbox for analyzing dipolar EPR spectroscopy data" *by* Luis Fábregas Ibáñez et al.

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Received and published: 8 July 2020

In general, this issue is strongly dependent on how and where the paramagnetic labels are attached to the amyloid fibers. If the peptide molecules are all spin-labelled, inter-peptide label pairs in the DEER distance range are likely to be formed. You will then experience intra-fiber multi-spin effects that cannot rigorously be removed by a procedure that accounts for background. However, these effects can be reduced (or even suppressed) by experimental approaches such as diamagnetic dilution. By diluting a small fraction of specifically-labeled (paramagnetic) fibers with a larger fraction of unlabeled (diamagnetic) fibers, the multi-spin effects are reduced thanks to a reduced probability to encounter an unpaired electron in a neighboring peptide molecule.

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