

Magn. Reson. Discuss., referee comment RC1  
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## Comment on mr-2021-24

Anonymous Referee #1

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Referee comment on "Using delayed decoupling to attenuate residual signals in editing filters" by Kenneth A. Marincin et al., Magn. Reson. Discuss.,  
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Isotope filtration is a widely used technique in NMR spectroscopy to suppress signals from  $^1\text{H}$  spins attached to  $^{13}\text{C}$  or  $^{15}\text{N}$  spins. The variation particularly in  $^1\text{H}$ - $^{13}\text{C}$  scalar coupling constants poses a challenge to isotope filtration methods in solution NMR spectroscopy and unfortunately techniques to compensate for variations in couplings are typically less sensitive than simpler methods (better compensation results in longer pulse sequences). The present paper uses delayed decoupling to provide an additional level of suppression in a pulse sequence implementing standard filtration methods. The method is well-described and validated by the authors and promises to be very valuable in the study of complexes between isotopically enriched and unlabeled species. My only comments on this well written paper would be to suggest that references be added for

Madis Alla, Endel Lippmaa, High resolution broad line  $^{13}\text{C}$  NMR and relaxation in solid norbornadiene, *Chemical Physics Letters*, 37, 260-264, 1976.

which introduces delayed decoupling for spectral editing in CPMAS solid state NMR and

Rößler P, Mathieu D, Gossert AD. Enabling NMR Studies of High Molecular Weight Systems Without the Need for Deuteration: The XL-ALSOFAST Experiment with Delayed Decoupling. *Angew Chem Int Ed Engl.* 59, 9329-19337, 2020.

which uses delayed decoupling to enhance sensitivity in solution heterocorrelation experiments.