Magn. Reson. Discuss.,
https://doi.org/10.5194/mr-2020-33-SC1, 2020

Open Access MAGNETIC RESONANCE Discussions

Interactive comment on "Revisiting paramagnetic relaxation enhancements in slowly rotating systems: how long is the long range?" *by* Giovanni Bellomo et al.

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The article identifies an important mechanism by which the best R1 relaxation rate measurements will yield unexpectedly large PREs, as the overall relaxation rate is enhanced by cross-relaxation between protons that themselves experience PREs. The effect becomes quite significant for greater distances from the paramagnetic centre. Interestingly, at intermediate distances the opposite effect can occur too, i.e. the total PRE can become slower than expected based on the simple Solomon equation. Is this due to NOE contacts with protons located at greater distance from the paramagnetic centre?

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Discussion paper

Can the authors predict what the situation would be like for backbone amide protons in a perdeuterated protein in H2O, where the only protons are the amide protons from the backbone and side chains (also allowing the presence of hydroxyl protons)? What would the situation be like if the methyls of isoleucine, valine and leucine are protonated whereas the rest of the protein is perdeuterated?

Line 136: exchange rates usually are expressed in s-1, not seconds.

Interactive comment on Magn. Reson. Discuss., https://doi.org/10.5194/mr-2020-33, 2020.

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Discussion paper