

## ***Interactive comment on “Towards resolving the complex paramagnetic NMR spectrum of small laccase: Assignments of resonances to residue specific nuclei” by Rubin Dasgupta et al.***

### **Anonymous Referee #2**

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I agree with the comment made by referee 1 to which I would add the following comments that in my opinion would strengthen the manuscript. Introduction, line 60, none of the references given reports on suggestions that resonance transfer of energy has been suspected or modelled in laccases. Unless there is such expectation and relevant references, this section requires major revision. Chemical exchange in laccases is interesting enough. Line 158: NOE vs Exchange cross peaks have been discriminated in paramagnetic proteins displaying exchange using ROESY experiments. This might offer an opportunity for the authors to obtain conclusive evidence the nature of the cross-peaks. This is relevant in the context of figure 3 where no mention of the assumption is made and the distinction between dipolar and exchange origin of the cross

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peaks is taken as firm. Figure 2: The authors should include a 1D spectrum of this region which is not clearly visible in figure 1. It would also be helpful to have together with equation S1 a table of the  $A$  and  $2J$  values that were used to generate lines in panel c. Figure 5: it is unclear from the data as reported in the figure how the authors concluded on the existence of crossover for some signals. For example signal 7 in the data from the mutant. I suggest that the figure is made to have the same scale in the two panels.

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