

Interactive comment on “Optical Detection of Magnetic Resonance” by Dieter Suter

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This is a very instructive review manuscript, which would help the interested readers (I believe there would be many in the magnetic resonance community) to take the bird's-eye view over the topics in magnetic resonance where the optical fields plays important roles both in polarizing spin systems and in offering superior detection sensitivity. I have just a few comments below, and I believe the manuscript, upon minor revision, would be suitable for publication in MR.

- Regarding spin selective intersystem crossing (ISC) that polarizes the triplet state of pentacene, the rather new references are cited in lines 162-163 (Kothe 2010, linuma, 2000). However, the first sign of high electron polarization in pentacene was suggested (A.J. van Strien, J. Schmidt, Chem. Phys. Lett. 70 (1980) 513-517) and precise determination of polarization by transient ESR was reported (D.J. Sloop, H. Yu, T. Lin,

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S.I. Weissman, J. Chem. Phys. 75 (1981) 3746-3757) much earlier. It would be nice to cite these papers as well.

- Fig.20 nicely demonstrates the asymmetric spectrum reflecting the population bias when the spin system is polarized and excited by a small-tip-angle pulse. Here, the spin temperature was estimated to be 1.2 mK, but would the author be able to discuss the population distribution over the four levels in this experiment? At least the static field and the carrier frequency should be informed, so that the readers can have a feeling of how high the polarization was in this example.

minor points:

- line 20: "population ratio" (close to zero, I think) should be read as "polarization" (close to unity).

- line 129: nthe -> the

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