Supporting Information

Modulation of the electron transfer processes in Au-ZnO nanostructures

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Contents: Hyperfine coupling constants (MHz) and rotational correlation times used in the simulations.

The experimental EPR spectra were analysed by simulations performed with the Easyspin package developed by Stoll and Schweiger[1,2] under the fast motion regime. For the computations we used a variable hyperfine coupling constant for the ^{14}N hyperfine coupling (a_N). The basic three-line spectrum of the nitroxide,[3,4] is assumed to be widened by the contribution of the equatorial methyl (3x2) and methylene protons (2x2),[5] whose hydrogen hyperfine coupling constants are adjusted to fit the experimental data, together with the line width l_{wpp} and the correlation time, τ_{corr}.

Free Tempol in ethylene glycol

a_N (MHZ)= (37.6070, 58.3032,42.52970)

a_H(MHZ)= (-0.30612,-0.16791,4.79870);(0.18032, -0.87991,-2.36472); (7.09796,-8.11412,4.99964); (-10.9136, 10.9660,4.82184) ; (2.51803, 2.16138, -5.91349);(-8.08036, 0.37575, 10.0920); (3.6916,-1.02880, 0.85662); (-5.22253, 3.76014,6.27574); (-4.14949, 9.34677,-2.67067);(-0.57518, -2.18507,7.94616)

$\tau_{corr=}$ 1.62 ns

l_{wpp} (MHZ)=1.04

Tempol in the ZnO ethylene glycol sol

a_N = (42.5011, 52.3213, 43.6962)

$a_{H=}$ (-0.30612,-0.16791,4.79870);(0.18032, -0.87991,-2.36472); (6.72494,-1.69015,-0.333705); (-4.43002, 5.69316,-2.71134) ; (0.526515,-0.329775, 0.897171);(-3.57238, -1.26125, 7.11211); (1.7236,-1.95071, 4.0384); (-0.349074, 2.80980,-0.506770); (0.734089,-0.332539,4.442752);(2.141790, 3.35953, -2.9057)

$\tau_{corr=}$ 3.58 ns

l_{wpp} (MHZ)=1.04

Tempol in the ZnO-Au ethylene glycol sol

a_N = (36.9738, 57.9921,43.7801)

$a_{H=}$ (-2.09645,0.64206,4.98403);(-3.80069, -0.73878,1.09807); (7.28448,-3.83870,0.27764); (3.54688,-3.93947,-2.85821) ; (-3.80660,-0.25182,-5.00918);(-9.49664, -1.88615, 7.73648); (-1.69777,-0.34125, 5.88756); (-2.13772, 1.97292,-3.33179); (2.22498,-3.75625,4.10981);(1.86136, 3.01204, -0.66517)

$\tau_{corr=}$ 1.82 ns

l_{wpp} (MHZ)=1.04

([1]) S.Stoll, A.Schweiger, *J. Magn. Reson.,* **2006**, *178*, 42-55.

([2]) S. Stoll, A. Schweiger, *Biol. Magn. Reson.,* **2007**, *27*, 299-321

([3]) C. C. Whisnant, S. Ferguson and D. B. Chesnut, *J.Phys. Chem.*, 1974, **78**, 1410-1415.

([4]) J. J. Windle, *J. Mag. Res.* **1981,** 45, 432-439.

[5] Y. Nosaka, H. Natsui, M. Sasagawa and A. Y. Nosaka, *J. Phys. Chem. B* **2006**, *110*, 12993-12999.