

# Supporting Information

## 5 Electroplated waveguides to enhance DNP and EPR spectra of silicon and diamond particles

Aaron Himmler<sup>1</sup>, Mohammed M. Albannay<sup>1,2</sup>, Gevin von Witte<sup>1,2</sup>, Sebastian Kozerke<sup>2</sup>, Matthias Ernst<sup>1</sup>

<sup>1</sup> ETH Zurich, Laboratory of Physical Chemistry, Zurich 8093, Switzerland

10 <sup>2</sup> University and ETH Zurich, Institute for Biomedical Engineering, Zurich 8092, Switzerland

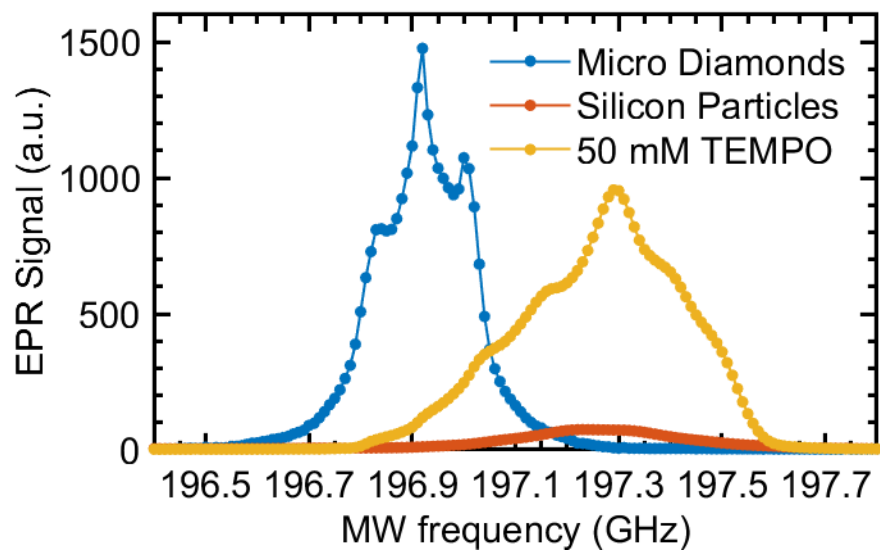
Correspondence to: Matthias Ernst ([maer@ethz.ch](mailto:maer@ethz.ch))

### Content

- 15
- Table of  $T_{1e}$  values
  - Comparison of EPR-signals: Micro Diamonds, TEMPO and Silicon Particles

Table S1: Experimental  $T_{1e}$  relaxation times of different radicals at different temperatures, measured by LOD, 7 T. Samples: 50 mM 4-oxo-TEMP in 1:1 (v/v) water/glycerin, nano-diamonds (636428-1G, <10 nm, Aldrich), micro-diamonds (MSY 8-20 12  $\mu$ m, Microdiamant AG), silicon particles (P28A002, 1-20  $\mu$ m, Alfa Aesar).

Temperature	$T_{1e}$ TEMPO	$T_{1e}$ nano-diamonds	$T_{1e}$ micro-diamonds	$T_{1e}$ silicon particles
5 K	605.4 $\mu$ s	77.0 $\mu$ s	490.7 $\mu$ s (99.3%) 17.0 $\mu$ s (0.7%)	359.5 $\mu$ s (99.6%) 8.8 $\mu$ s (0.4%)
7 K	599.3 $\mu$ s	55.4 $\mu$ s	496.4 $\mu$ s (99.4%) 14.2 $\mu$ s (0.6%)	297.9 $\mu$ s (96.1%) 15.9 $\mu$ s (3.9%)
10 K	591.3 $\mu$ s	37.5 $\mu$ s	485.5 $\mu$ s (98.9%) 24.5 $\mu$ s (1.1%)	242.4 $\mu$ s (87.0%) 19.6 $\mu$ s (13.0%)
15 K	566.6 $\mu$ s	27.3 $\mu$ s	459.5 $\mu$ s (99.1%) 17.7 $\mu$ s (0.9%)	209.8 $\mu$ s (90.6%) 12.6 $\mu$ s (9.4%)
20 K	518.4 $\mu$ s	22.4 $\mu$ s	462.2 $\mu$ s (99.5%) 11.6 $\mu$ s (0.5%)	186.9 $\mu$ s (90.6%) 9.4 $\mu$ s (9.4%)



25 Fig. S2: LOD-EPR spectra of micro diamonds (blue), silicon particles (red) and 50 mM 4-oxo-TEMPO in 1:1 (v/v) water/glycerin (yellow), 7 T at 20 K, 200 mW microwave output power.