SUPPORTING INFORMATION

Singular value decomposition method to determine distance distributions in pulse dipolar electron spin resonance: II. Estimating Uncertainty

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Figure S1: Case 1 – Unimodal Distribution from the denoised data. A) Distance distribution with uncertainty analysis reconstructed using the SVD method; B) Picard plot for the 2 nm distance, revealing that the solution for this distance never diverges. Hence, the last data point is selected as SVC cut-off; C) Picard plot for the 4.3 nm distance, revealing the singular value cut-off before which solution at this distance diverges; D) $P(r)$ values obtained at the 2 nm distance by different SVCs until the SVC cut-off; if it never diverges as in this case then the last SVC is selected as cut-off E) $P(r)$ values obtained at the 4.3 nm distance by different SVCs until the SVC cut-off.
Figure S2: Case 1 – Unimodal Distribution from the noisy data. A) Distance distribution with uncertainty analysis reconstructed using the SVD method; B) Picard plot for the 2 nm distance, revealing that the solution for this distance never diverges. Hence, the last data point is selected as SVC cut-off; C) Picard plot for the 4.3 nm distance, revealing the singular value cut-off before which solution at this distance diverges; D) $P(r)$ values obtained at the 2 nm distance by different SVCs until the SVC cut-off; if it never diverges as in this case then the last SVC is selected as cut-off E) $P(r)$ values obtained at the 4.3 nm distance by different SVCs until the SVC cut-off.
Figure S3: Case 2 – Bimodal Distribution from the denoised data. A) Distance distribution with uncertainty analysis reconstructed using the SVD method; B) Picard plot for the 2 nm distance, revealing that the solution for this distance never diverges. Hence, the last data point is selected as SVC cut-off; C) Picard plot for the 4.3 nm distance, revealing the singular value cut-off before which solution at this distance diverges; D) $P(r)$ values obtained at the 2 nm distance by different SVCs until the SVC cut-off; if it never diverges as in this case then the last SVC is selected as cut-off E) $P(r)$ values obtained at the 4.3 nm distance by different SVCs until the SVC cut-off.
Figure S4: Case 2 – Bimodal Distribution from the noisy data. A) Distance distribution with uncertainty analysis reconstructed using the SVD method; B) Picard plot for the 3.2 nm distance, revealing the singular value cut-off before which solution at this distance diverges; C) Picard plot for the 4.3 nm distance, revealing the singular value cut-off before which solution at this distance diverges; D) $P(r)$ values obtained at the 3.2 nm distance by different SVCs until the SVC cut-off; if it never diverges as in this case then the last SVC is selected as cut-off E) $P(r)$ values obtained at the 4.3 nm distance by different SVCs until the SVC cut-off.
Figure S5: Case 3 – Bimodal Distribution from the denoised data. A) Distance distribution with uncertainty analysis reconstructed using the SVD method; B) Picard plot for the 3 nm distance, revealing that the solution for this distance never diverges. Hence, the last data point is selected as SVC cut-off; C) Picard plot for the 3.7 nm distance, revealing the singular value cut-off before which solution at this distance diverges; D) \( P(r) \) values obtained at the 3 nm distance by different SVCs until the SVC cut-off; if it never diverges as in this case then the last SVC is selected as cut-off E) \( P(r) \) values obtained at the 3.7 nm distance by different SVCs until the SVC cut-off.
**Figure S6:** Case 3 – Bimodal Distribution from the noisy data. 

A) Distance distribution with uncertainty analysis reconstructed using the SVD method; B) Picard plot for the 3 nm distance, revealing that the solution for this distance never diverges. Hence, the last data point is selected as SVC cut-off; C) Picard plot for the 3.7 nm distance, revealing the singular value cut-off before which solution at this distance diverges; D) $P(r)$ values obtained at the 3 nm distance by different SVCs until the SVC cut-off; if it never diverges as in this case then the last SVC is selected as cut-off; E) $P(r)$ values obtained at the 3.7 nm distance by different SVCs until the SVC cut-off.