Supporting information for

Comparison of various sampling schemes and accumulation profiles

in covariance spectroscopy with exponentially decaying 2D signals

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Figure.S1. Comparison of the relayed-peaks observed in the 2D spectra treated with FT2D (a), or COV2D: $C(\omega_1, \omega_2) = S(t_1, \omega_1)^T S(t_1, \omega_2)$ (b, Eq.5) and $F(\omega_1, \omega_2) = \sqrt{S(t_1, \omega_1)^T S(t_1, \omega_2)}$ (c, Eq.6). The same low contour level has been used for all spectra. Both the cosine and sine parts required by the States acquisition were used in (a,b,c). The data have been obtained on histidine sample (h) with the PARIS_{xy,m=2} sequence using: $v_R = 40$ kHz, $v_1 = 10$ kHz, $B_0 = 21.1$ T and $\tau_{mix} = 250$ ms. Due to the use of low ¹H irradiation power, $v_1 = 0.25 v_R$, several cross-peaks are not revealed in (a). (e,f,g): Comparison of the selected 1D slices along C² = 138 ppm. The CPMAS spectrum is shown in (d) for comparison. Clearly, two "relayed-peaks" at (C² = 138 ppm, C' = 180 ppm) and (C² = 138 ppm, C^{α} = 56 ppm) show up in the two COV2D spectra, while they do not appear in FT2D spectrum. The lost of these peaks in FT2D spectrum arises from the narrow-band nature of PARIS_{xy,m=2}.¹

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