Electronic Supplementary Material (ESI) for RSC Advances.

HD-2D: Routine high-dispersion two-dimensional NMR spectra at no extra cost.

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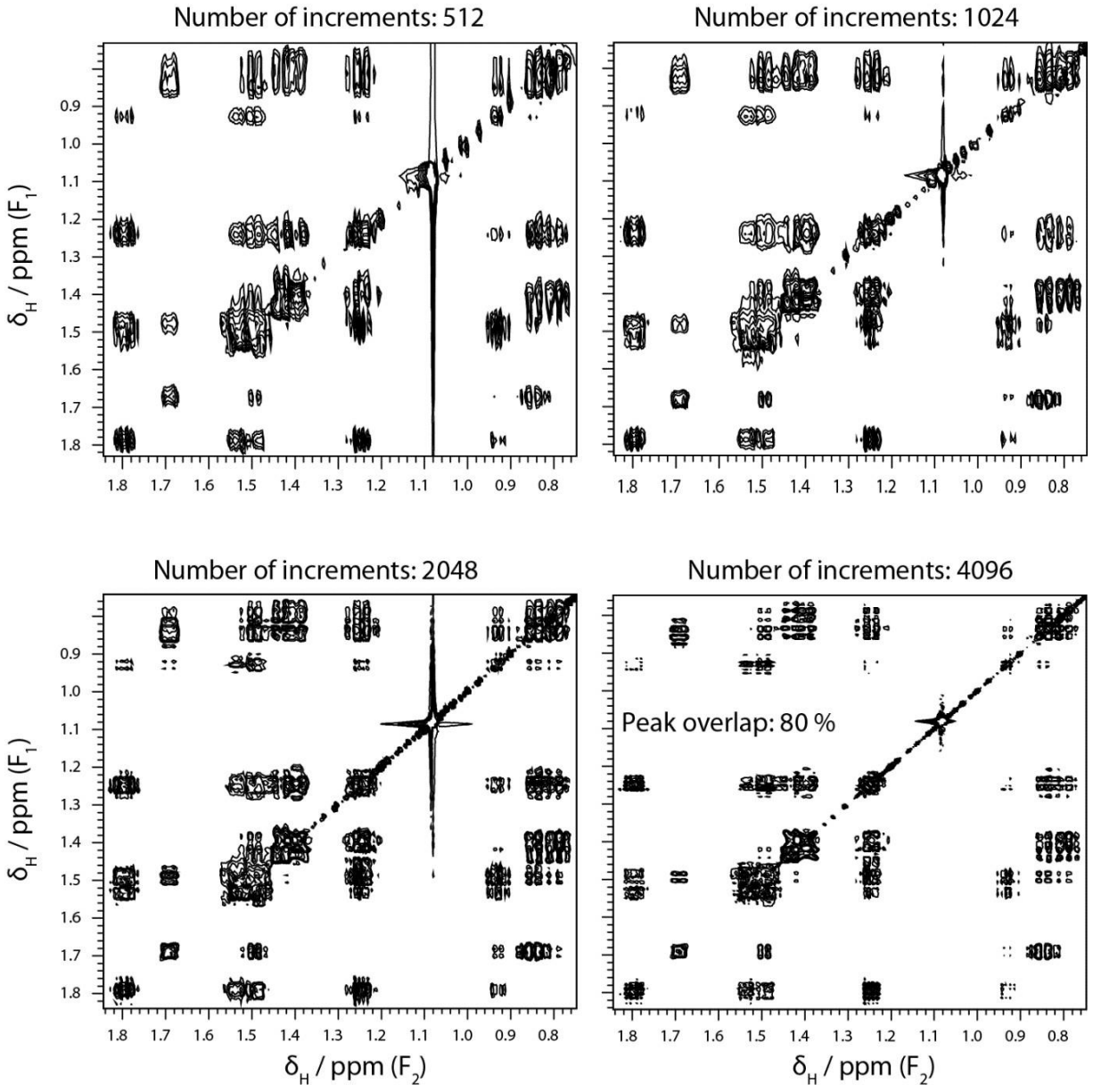

Figure SI-1. This figure illustrates how resolving power does not improve significantly once the digital resolution in F1 is less than the width of the multiplet. Here less than 20 % of the peaks are free of overlap even if 4096 increments, and more than nine hours of spectrometer time, are used.

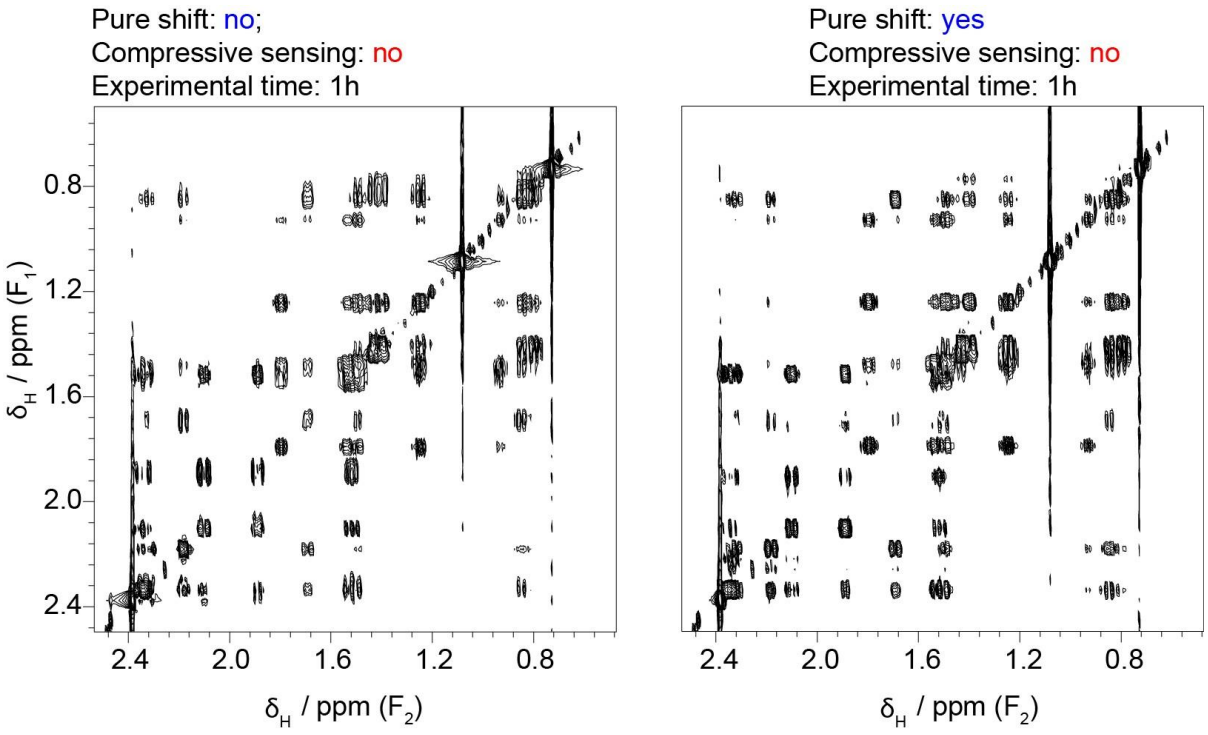

Figure SI-2. This figure illustrates that little benefit is gained when using pure shift techniques if the pure shift dimension is not digitized sufficiently well to be able to tell the difference between a multiplet and a singlet. In this example, the experiments of Figure 1 have been acquired with just 512 increments, thus leading to a digital resolution in F1 of 12 Hz/point. With this level digital resolution it is difficult to tell the difference between a conventional TOCSY (left) and one decoupled in F1 (right).

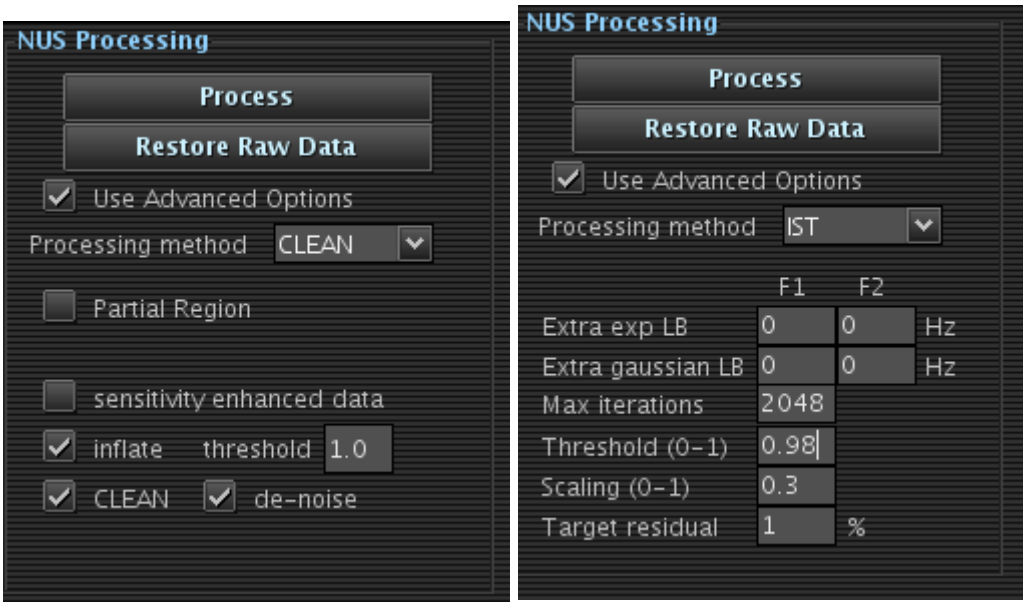

Figure SI-3. The Agilent VNMRJ version 4.2 software was used to acquire and reconstruct compressive sensing-based experiments. IST and CLEAN algorithms were used to reconstruct the data. IST usually produces cleaner results than CLEAN, but CLEAN seems faster, at least in the present implementation. The figures show typical setting used.