

multiple region selective HMQC

In 2D NMR measurements involving ^{19}F , unlike those for ^1H and ^{13}C only, wide chemical shifts of ^{19}F make it difficult to detect correlation peaks. RF pulses should manipulate magnetizations as designed, and otherwise signal intensities become considerably low. In multiple region selective (mrs) HMQC,¹⁾ ^{19}F pulses are replaced by a selective excitation E-BURP1 pulse and a selective refocusing RE-BURP pulse, and several frequency regions are simultaneously excited/refocused using shifted laminar pulses, permitting all the correlation peaks to be detected.

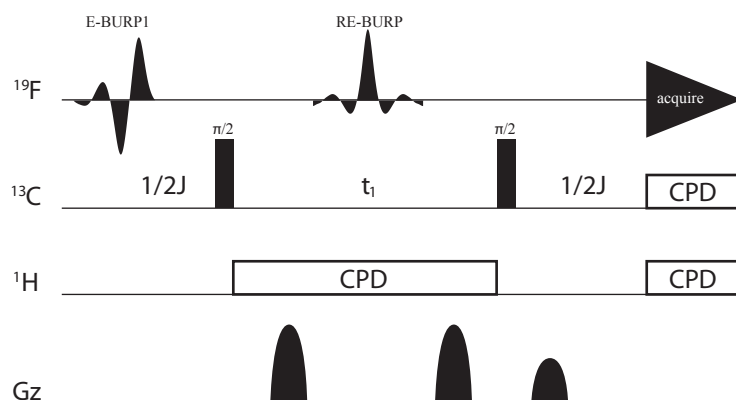


Fig. 1 Pulse diagram of mrs-HMQC

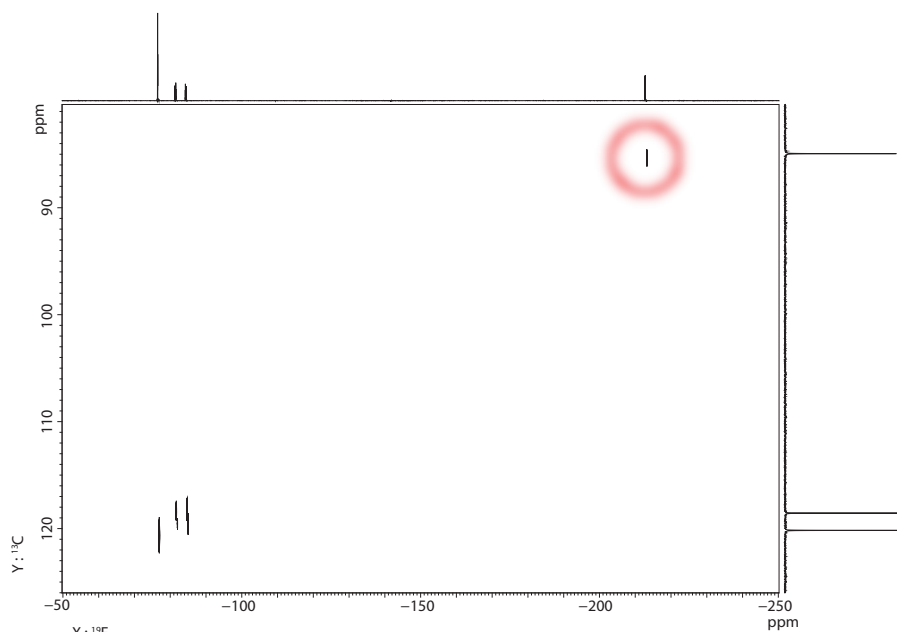


Fig. 2 mrs-HMQC spectra of $\text{CF}_3\text{CHF}_2\text{OCH}_2\text{CH}_3$

Spectrometer: JNM-ECA500

Conventional HMQC method, where the offset of ^{19}F rectangular pulses is fixed at -80ppm , does not give a correlation peak at -210ppm , but all the correlation peaks are detected in the mrs-HMQC spectrum.

Reference 1) S. Cheatham and J. Groce, J. Fluorine Chem. 125, 1111(2004).