

Spinsolve™ 90

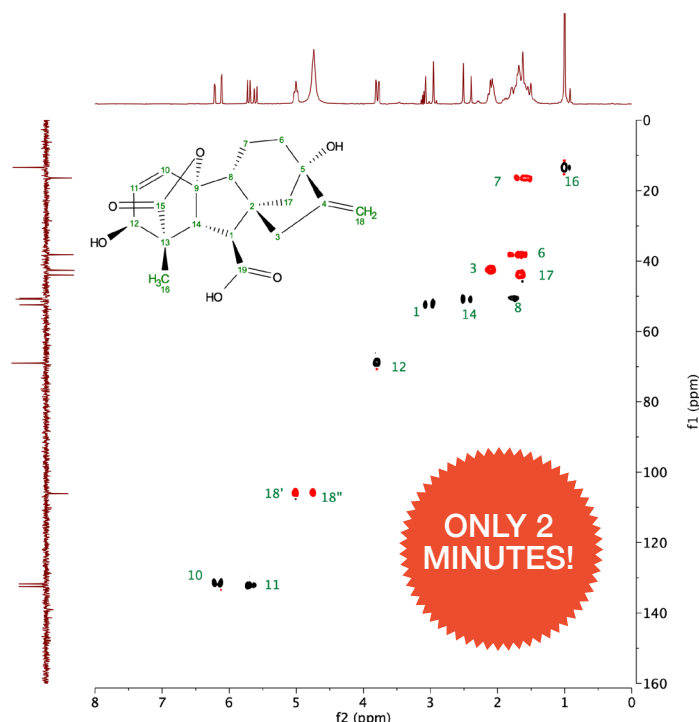
The unique performance of a Spinsolve - now at 90 MHz



Outstanding Features

- 90 MHz ^1H frequency
- Highest sensitivity:
 - single channel: > **320:1** for 1% Ethyl Benzene
 - dual channel : > 240:1 for 1% Ethyl Benzene
- Highest resolution:
 - Classic: 50 / 0.55 / 0.11% < 0.4 / 15 / 30 Hz
 - ULTRA: 50 / 0.55 / 0.11% < 0.2 / 8 / 16 Hz**
- Multi-nuclear probe
- 5 mm standard NMR tubes
- No sample spinning required
- Advanced methods like COSY, HSQC-ME, HMBC, NOAH, NUS (all gradient assisted)
- Benchtop footprint and weight
- No cryogens
- Available with automatic sample changer
- On-line reaction monitoring

Fast 2 min. HSQC-ME with NUS on a 250 mM sample



90 MHz HSQC-ME of Gibberellic Acid at 250 mMolar

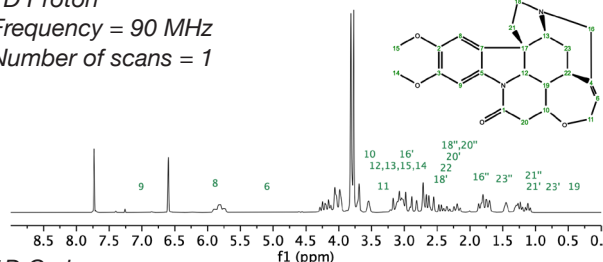
Fast and powerful, advanced multi-nuclear methods for structure confirmation

90 MHz NMR spectra of Brucine at 250 mMolar concentration

1D Proton

Frequency = 90 MHz

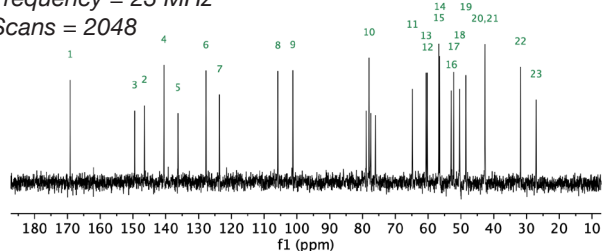
Number of scans = 1



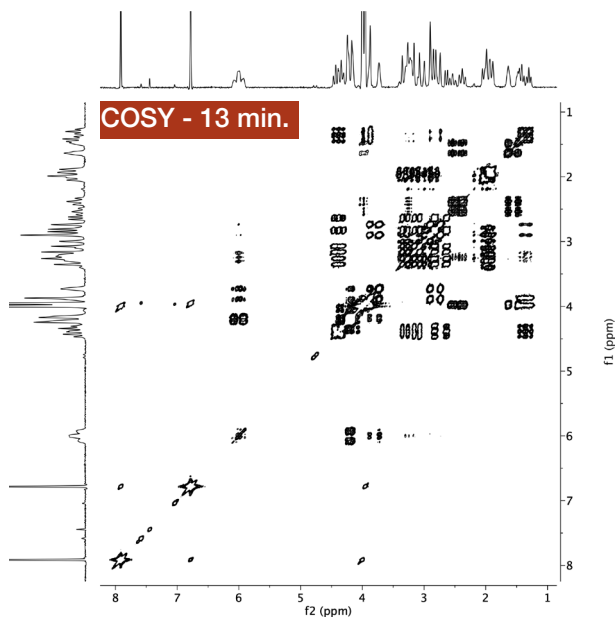
1D Carbon

Frequency = 23 MHz

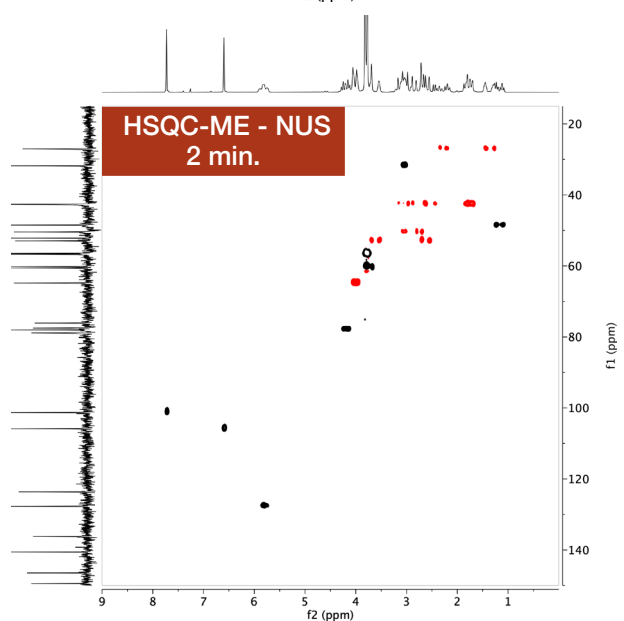
Scans = 2048



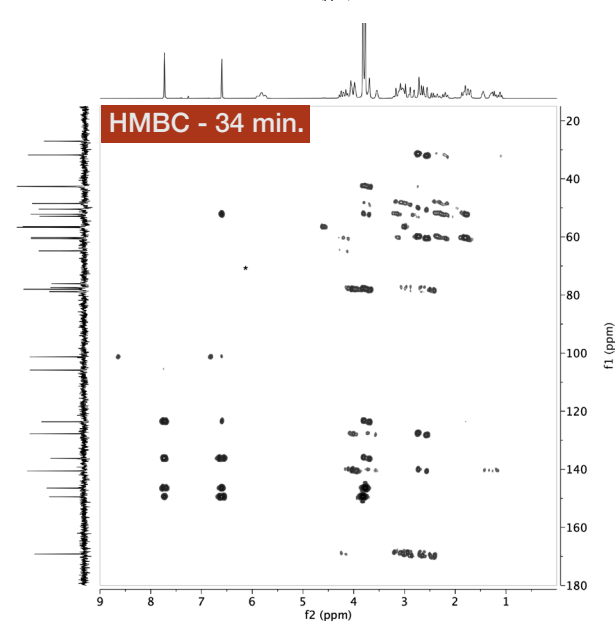
COSY - 13 min.



HSQC-ME - NUS
2 min.



HMBC - 34 min.

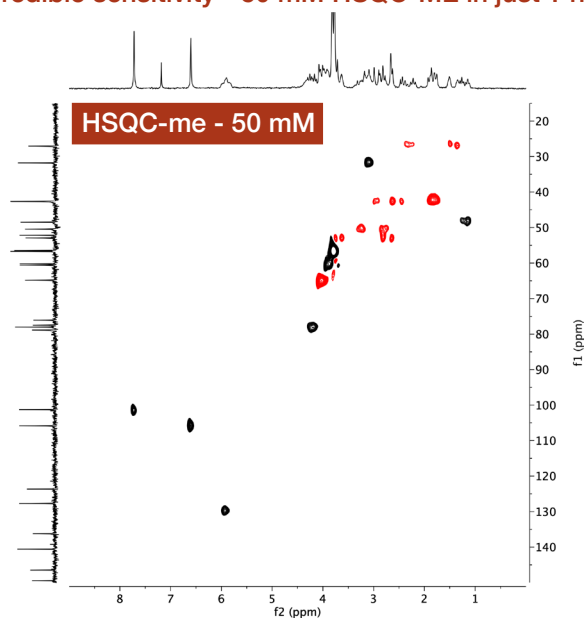


Incredible sensitivity - 50 mM HSQC-ME in just 1 hour

Samples with very low concentration

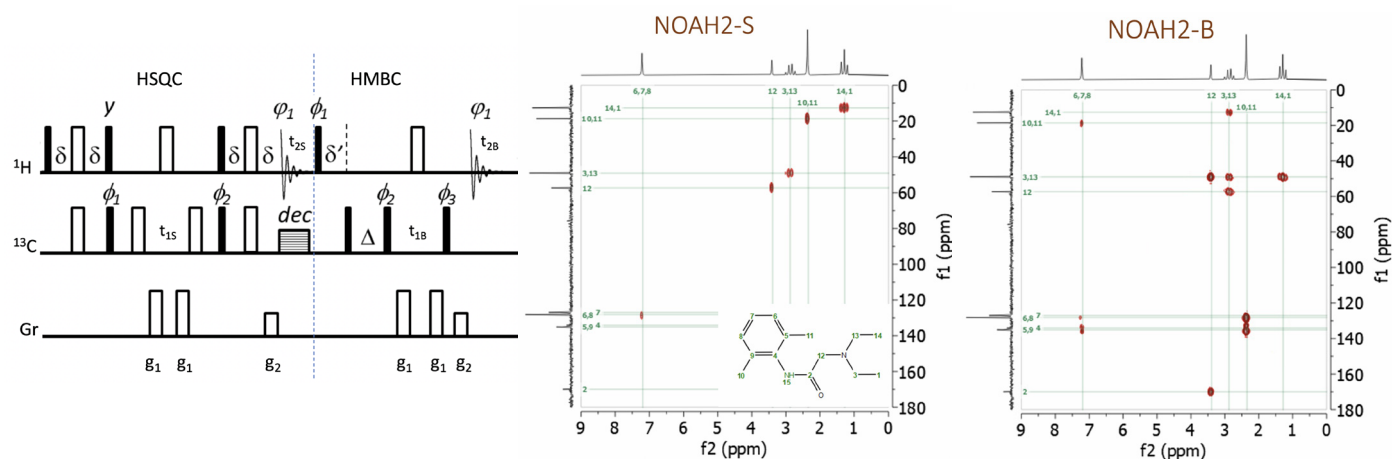
The high sensitivity of the HSQC-ME running on the Spinsolve 90 makes it possible to measure samples dissolved at low concentrations in short times. The spectrum on the right is the HSQC-ME spectrum of a Brucine sample dissolved at 50 mMolar. The experiment took 1 hour to acquire.

HSQC-me - 50 mM



NOAH (NMR by Ordered Acquisition using ^1H -detection)

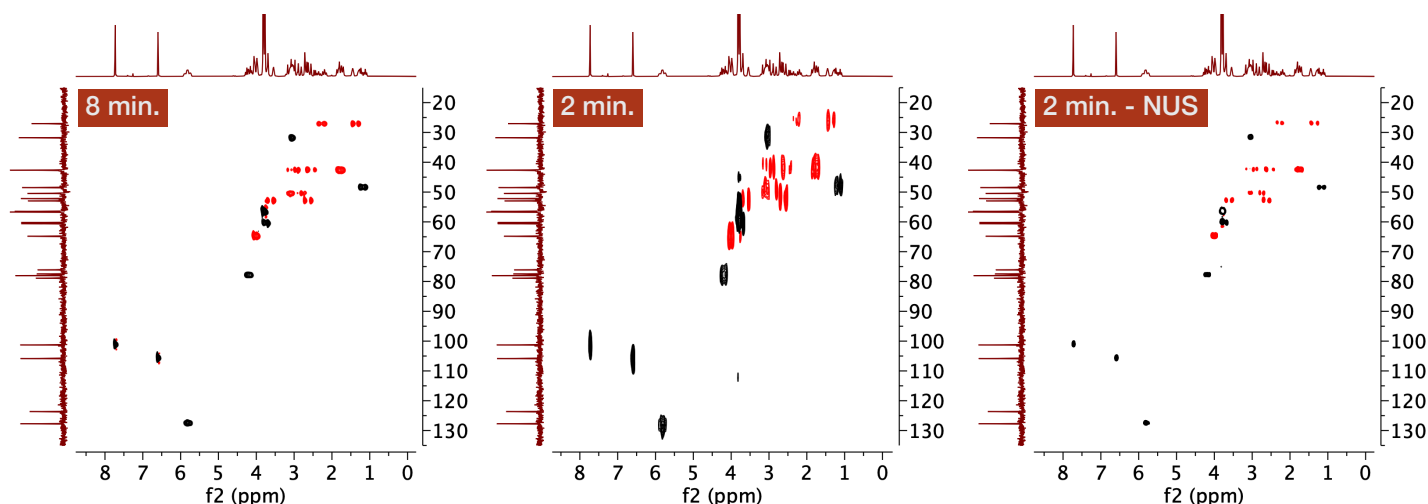
Advanced nested sequences, where multiple experiments are acquired with a single relaxation delay, are programmed in our fully digital spectrometer. All Spinsolve models come with pulse field gradients along x, y, and z for efficient signal selection. Moreover, both RF channels can be pulsed simultaneously with user defined waveforms. The figure below shows a NOAH-2 sequence optimized to acquire an HSQC and an HMBC just one after the other, without relaxation delay in between the acquisition of the rows of the two sequences.



NOAH-2 pulse sequence (left) implemented in the Spinsolve software to measure an HSQC and an HMBC experiment of a lidocaine sample dissolved at 250 mMolar with a single relaxation time. This sequence reduces the acquisition time from 34 minutes (time to acquire the two spectra in separate experiments) down to 21 minutes.

Reducing the measurement time by implementing Non-Uniform Sampling (NUS)

The acquisition of two-dimensional experiments is time consuming because a large number of steps along the indirect dimension are required to obtain an acceptable resolution. The NUS method makes it possible to sample the indirect dimension in a sparse way, considerably reducing the duration of the experiment, without degrading the f_1 resolution. By implementing this sampling approach on the Spinsolve 90 MHz we have managed to reduce the time to acquire an HSQC-ME sequence down to just 2 minutes with a sample concentration of 250 mMolar.



Comparison of the HSQC-ME spectra of a Brucine sample dissolved at 250 mMolar, acquired using the standard sampling method along f_1 with 256 steps (left), 64 steps (middle) and 256 steps sampled using the NUS method with 25% density.

Spinsolve™ 90



Specifications

- Operating frequency: 90 MHz (¹H)
- Nuclei: ¹H, ¹⁹F, ¹³C, ³¹P, ⁷Li, ¹¹B, ²⁹Si, ¹²⁹Xe, ²D, ¹⁵N
- ¹H Linewidth Classic: 50 / 0.55 / 0.11% < 0.4 / 15 / 30 Hz
ULTRA: 50 / 0.55 / 0.11% < **0.2** / 8 / 16 Hz
- ¹H Sensitivity single channel: >**320**:1 for 1% Ethyl Benzene
dual channel : >240:1 for 1% Ethyl Benzene
- Operating Temperature Range: 18° C to 28° C (65° F to 82° F)
- Dimensions: 66 x 45 x 43 cm (26" x 18" x 17")
- Weight: 115 kg (253 lb)
- Stray Field: < 2 G all around the enclosure
- Voltage Requirement: 100-240 VAC, 50/60 Hz
- Available with automatic sample changer
- Compatible with the reaction monitoring kit
- 3D pulsed field gradients optimized for modern pulse sequences
- Optional diffusion PFG

Pulse sequences available on the Spinsolve 90



Proton	Fluorine	Carbon
1D with ¹⁹ F and ¹³ C decoupling	1D Fluorine with ¹ H decoupling	1D Carbon with ¹ H and ¹⁹ F decoupling
1D paramagnetic	2D F - COSY	DEPT
2D gs-COSY*, gs-JRES	2D F - JRES	APT
2D gs-TOCSY, and gs-ROESY	2D FH - COSY	HETCOR
1D solvent suppression (Presat and WET)	T ₁ , T ₂	gs-HSQC
1D solvent suppression with T ₂ filter	PFG-DOSY	gs-HSQC-ME*
2D gs-COSY with solvent suppression	Reaction Monitoring	gs-HMQC
T ₁ , T ₂		gs-HMBC*
PFG-DOSY		gs-NOAH*
Reaction Monitoring		*Non-Uniform Sampling (NUS) available

Other sequences available, contact Magritek for details.

Contact us now for a quote, to request a demo or to measure your samples

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