

# Spinsolve™ 90

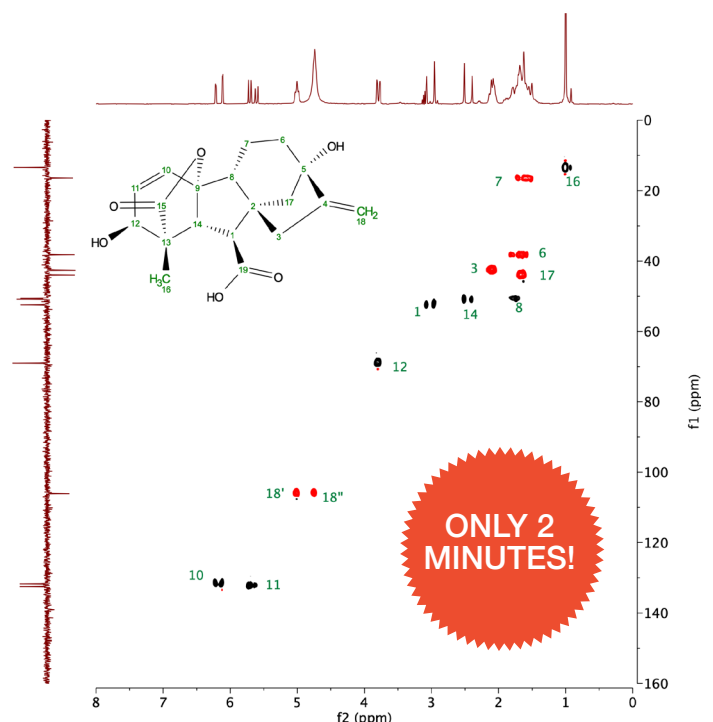
The unique performance of a Spinsolve - now at 90 MHz



## Outstanding Features

- 90 MHz  $^1\text{H}$  frequency
- Highest sensitivity: 240:1 (1% EtBz)
- Highest resolution:  
LW 50/0.55% < 0.4 / 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 cryogenics
- 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

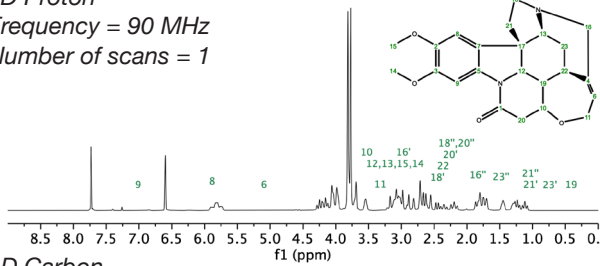
# Fast and powerful, advanced multi-nuclear methods for structure confirmation

## 90 MHz NMR spectra of Brucine at 250 mMolar concentration

1D Proton

Frequency = 90 MHz

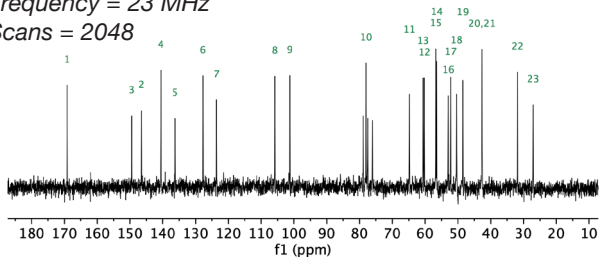
Number of scans = 1



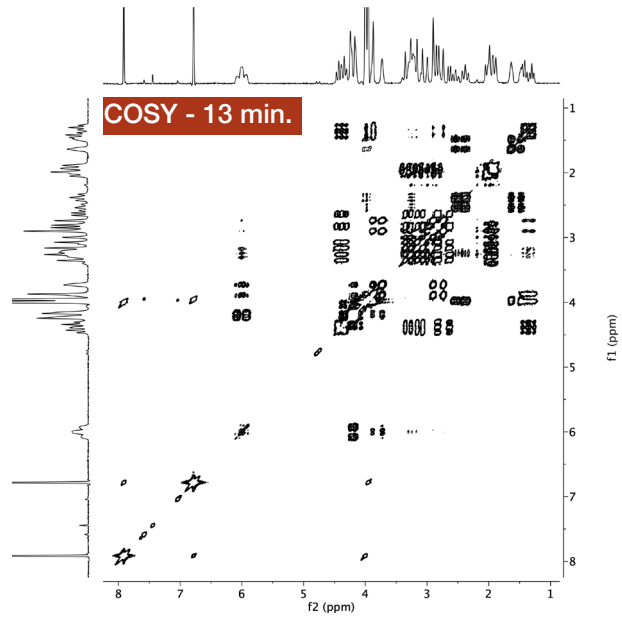
1D Carbon

Frequency = 23 MHz

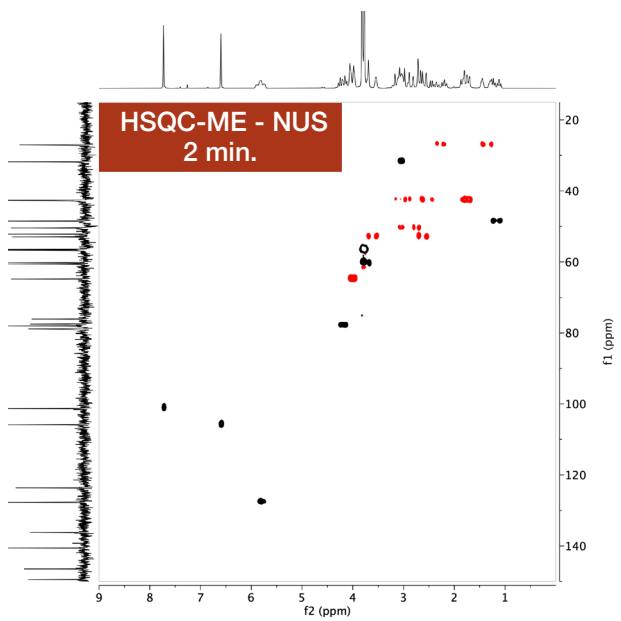
Scans = 2048



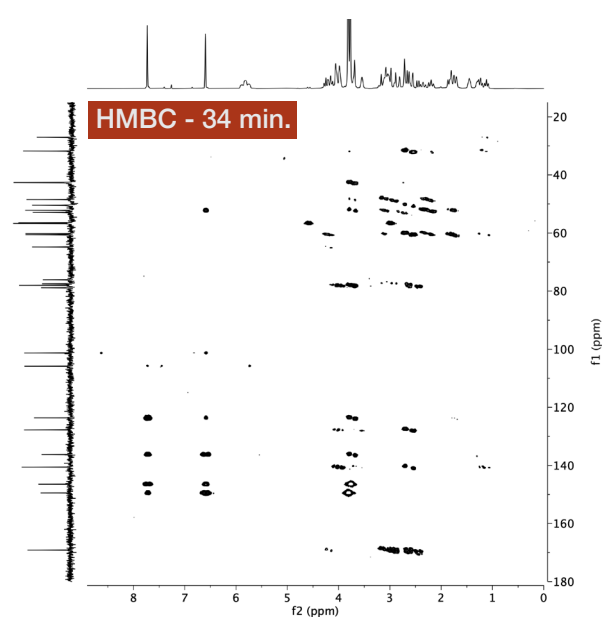
COSY - 13 min.



HSQC-ME - NUS  
2 min.



HMBC - 34 min.

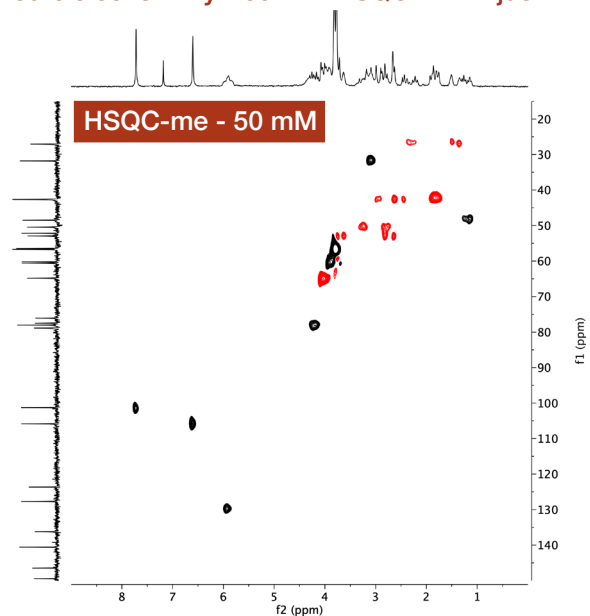


Incredible sensitivity - 50 mM HSQC-ME in just 1 hour

## Samples with very low concentration

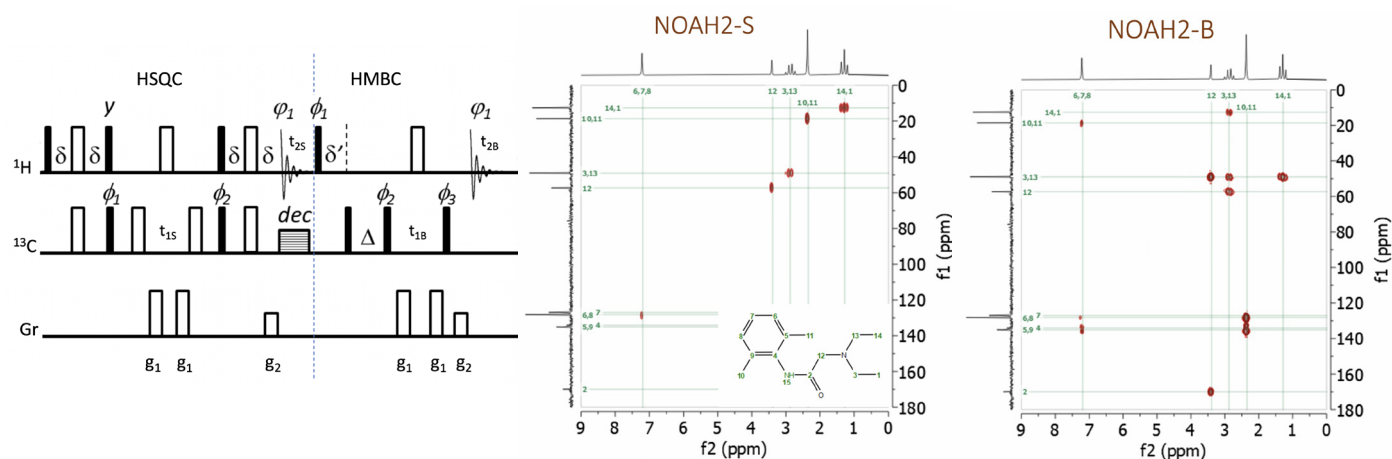
The high sensitivity of the HSQC-ME running on the Spinsolve 90 makes it possible to measure samples dissolved at low concentrations in short times. The spectrum on the right is the HSQC-ME spectrum of a Brucine sample dissolved at 50 mMolar. The experiment took 1 hour to acquire.

HSQC-me - 50 mM



## NOAH (NMR by Ordered Acquisition using $^1\text{H}$ -detection)

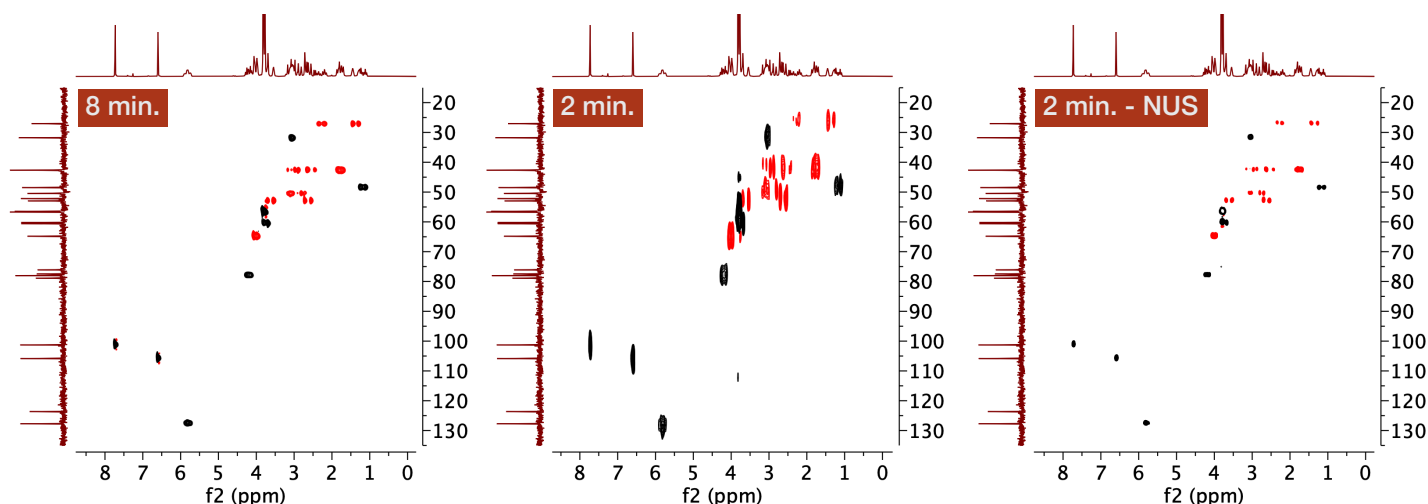
Advanced nested sequences, where multiple experiments are acquired with a single relaxation delay, are programmed in our fully digital spectrometer. All Spinsolve models come with pulse field gradients along  $x$ ,  $y$ , and  $z$  for efficient signal selection. Moreover, both RF channels can be pulsed 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 (<sup>1</sup>H)
- Nuclei: <sup>1</sup>H, <sup>19</sup>F, <sup>13</sup>C, <sup>31</sup>P, <sup>7</sup>Li, <sup>11</sup>B, <sup>29</sup>Si, <sup>129</sup>Xe, <sup>2</sup>D, <sup>15</sup>N
- <sup>1</sup>H Linewidth: 50 / 0.55% < 0.4 / 16 Hz
- <sup>1</sup>H Sensitivity (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
- All models available with 3D pulsed field gradients optimized for modern pulse sequences
- Optional diffusion PFG

## Pulse sequences available on the Spinsolve 90



Proton	Fluorine	Carbon
1D proton	1D Fluorine with <sup>1</sup> H decoupling	1D Carbon with <sup>1</sup> H and <sup>19</sup> F decoupling
1D PRESAT solvent suppression	Paramagnetic	DEPT
1D with <sup>19</sup> F and <sup>13</sup> C decoupling	2D F - COSY	APT
2D COSY	2D F - JRES	HETCOR
2D TOCSY	2D FH - COSY	HSQC
2D ROESY	T <sub>1</sub>	HSQC-ME
2D JRES	PFG-DOSY	HMQC
T <sub>1</sub> , T <sub>2</sub>	Reaction Monitoring	HMBC
PFG-DOSY		NOAH
Reaction Monitoring		NUS

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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Website: [www.magritek.com/contact-us](http://www.magritek.com/contact-us)

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