

## Nuclear magnetic resonance

The Nuclear Magnetic Resonance Laboratories currently house five magnet systems from Bruker - a 500MHz spectrometer, two 400 MHz spectrometers and two 300 MHz spectrometers. The NMR Facility has recently been thoroughly updated by way of a substantial investment by Advantage West Midlands. All the instruments run current HP work stations along with Bruker's TOPSPIN software for data acquisition and processing. Additionally, two of the instruments (at 300 and 400 MHz) have been re-consolidated with Bruker's latest Avance III electronics along with new probeheads and shimsets.

The NMR Systems are very well specified and the analytical facility can offer routine or complex NMR experiments, with or without Pulsed Field Gradients. It is also equipped to offer multinuclear observation and all the spectrometers are set up for variable temperature operation. Additionally, all four lower field instruments are equipped with 60-sample autosamplers for fast, efficient, round the clock operation and full operational flexibility. The laboratories have their own dedicated server and off-line processing facilities to allow the rapid and reliable retrieval of data. Data is also separately archived for long-term storage.

The NMR laboratories are fully integrated with the other techniques of the analytical facility mass spectrometry, chromatography, microanalysis and x-ray crystallography to provide a complete 'problem solving' approach to its user base.

### Magnetic resonance equipment

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#### Bruker DRX500

- 3 Channel, Pulse Field Gradients, (z-axis)
- Inverse z-gradient 1H-{13C}-{X} TBI triple resonance 5 mm probehead
- 2H gradient shimming, VT facilities, HP workstation, TOPSPIN software

#### Bruker AV400

- 2 Channel, Autosampler, Pulse Field Gradients, (z-axis)
- Direct z-gradient 1H-{X} BBO 5 mm probehead
- Inverse z-gradient 1H-{X} BBI 5 mm probehead
- 2H gradient shimming, VT facilities, HP workstation, TOPSPIN software

#### Bruker AVIII400

- 2 Channel, Autosampler, Pulse Field Gradients, (z-axis)
- Direct z-gradient 1H-{13C} DUL plus 5 mm probehead, with ATMA
- Direct z-gradient 1H, 13C, 19F, and 31P QNP 5mm probehead
- Direct broadband multinuclear 10 mm VSP probehead
- 2H gradient shimming, VT facilities, HP workstation, TOPSPIN software

#### Bruker AV300

- 2 Channel, Autosampler, Pulse Field Gradients, (z-axis)
- Direct z-gradient 1H, 13C, 19F, and 31P QNP 5mm probehead
- Direct 1H and 13C DUL 5 mm probehead
- 2H gradient shimming, VT facilities, HP workstation, TOPSPIN software

#### Bruker AVIII300

- 2 Channel, Autosampler, Pulse Field Gradients, (z-axis)
- Direct z-gradient 1H-{X, 19F} BBFO 5 mm probehead, with ATMA
- Direct 1H, 13C, 19F, and 31P QNP 5mm probehead
- 2H gradient shimming, VT facilities, HP workstation, TOPSPIN software

### What can we offer?

We can offer the very fast turn around of routine 1H, 13C, 19F and 31P spectra run completely in automation.

More demanding multi-pulse experiments, including nOe work can be performed following discussion, as required, with our expert widely experienced staff.

Following discussion, dynamic, variable temperature experiments in the range of minus 95 degrees centigrade to plus 110 degrees centigrade can be performed.

The Laboratories are well equipped for the observation of traditional inorganic multinuclear nuclei.

To submit a query or a quotation request please follow this link to fill our [online form \(http://www.chem.bham.ac.uk/industry/contact.shtml\)](http://www.chem.bham.ac.uk/industry/contact.shtml). In alternative, to discuss how we may be able to assist you contact:

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