

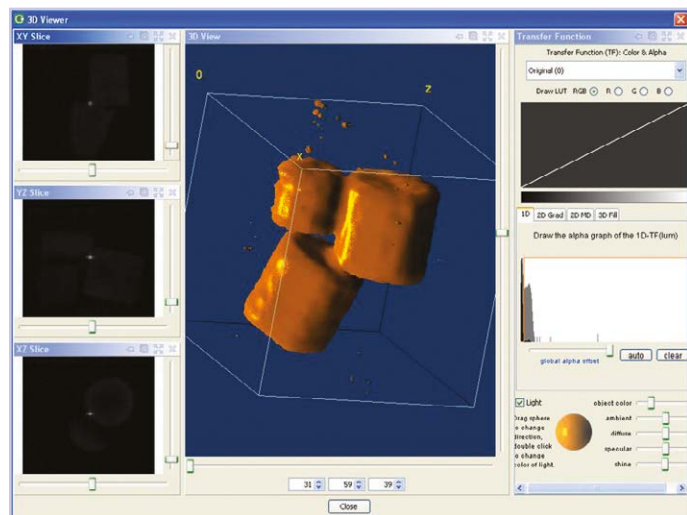
# GeoSpec 12MHz

## Rock core analyser with 3D imaging capabilities



Oxford Instruments has been supplying benchtop NMR instruments for core analysis since the early 1990s, when they were introduced to support the development and use of downhole NMR logging tools.

The base model **GeoSpec** operates at an NMR frequency of 2MHz, to emulate the downhole tools and also to minimise measurement artefacts caused by the paramagnetic material often found in sandstones.

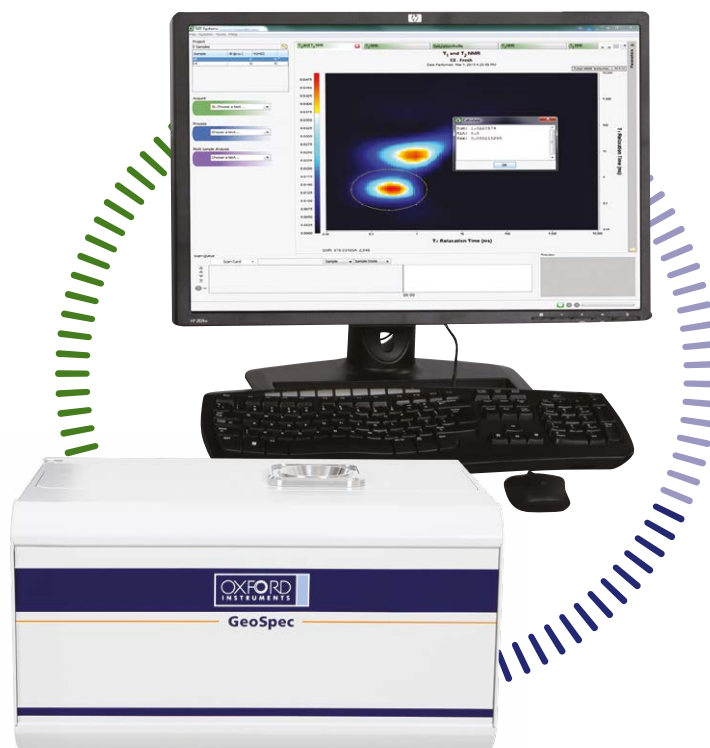


The 12MHz GeoSpec rock core analyser provides better signal to noise ratio (SNR) allowing for fast high resolution measurements.

Recently, there has been a shift towards oil and gas exploration in shales. This has brought about a reappraisal of the use of NMR for core analysis because of the structural differences in the rock types. Whereas sandstones have typically 15-25% porosity and pore sizes of tens to hundreds of microns, shales are more likely to have 2-15% porosity and pores only a hundredth the size of sandstone pores.

From the NMR perspective this means there is much less fluid from which to obtain an NMR signal, and a need to reach shorter echo times in order to observe the shorter  $T_2$  signals from the smaller pores.

Oxford Instruments addressed this problem first by introducing Q-Sense technology to the **GeoSpec** range, to allow shorter echo times and improved signal to noise ratios. Now, we have introduced a new model to the range to further improve sensitivity for low porosity materials by offering a higher operating frequency.



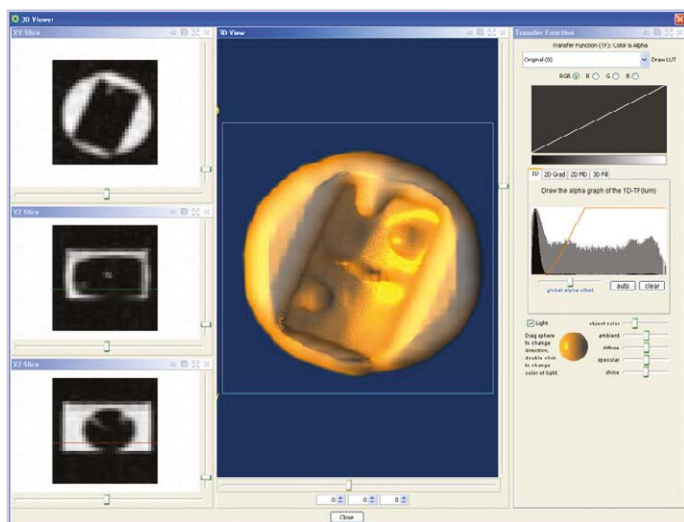
# GeoSpec 12MHz

Rock core analyser with 3D imaging capabilities



**GeoSpec**12 operates at 12MHz, which gives improved sensitivity over 2MHz measurements while not being high enough to give significant magnetic susceptibility artefacts, particularly with shale samples.

**GeoSpec**12 can be equipped with three-axis pulsed field gradients to permit diffusion based measurements and simple imaging. Green Imaging Technologies LithoMetrix software is supplied as standard, with options to upgrade to GIT Systems versions for additional applications.



A full suite of 3D viewing and analysis tools is included with GIT Systems 3D imaging software.

## Base specifications

Operating field (frequency)	0.28 T (12MHz proton resonance)
Maximum sample diameter	51mm
Gradient strength	>20 gauss/cm on three axes



For more information visit: [nmr.oxinst.com/geospec](http://nmr.oxinst.com/geospec)

### Oxford Instruments Magnetic Resonance

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