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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR ACQUIRING HIGH RESOLUTION SPECTRAL DATA OR HIGH DEFINITION IMAGES IN INHOMOGENEOUS ENVIRONMENTS

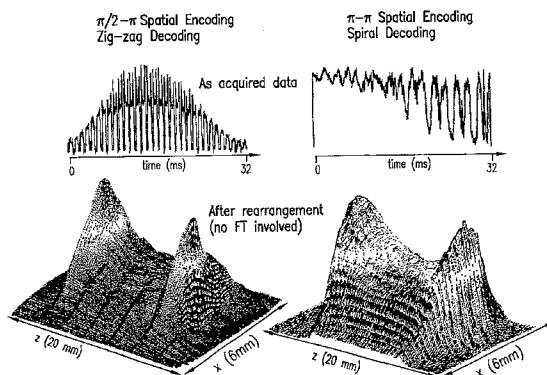


FIG. 5A

FIG. 5B

(57) Abstract: A method and apparatus for treating a sample for acquiring high-definition magnetic resonance images, (MRI images) or high resolution nuclear magnetic resonance (NMR) spectra even in the presence of magnetic field distortions within one or multiple scans. The spatial nature and temporal dependence of the field inhomogeneities are determined a priori using any of several literature procedures. A static or oscillating magnetic field gradient is applied on the sample so as to endow spins at different positions within the sample with different resonance frequencies. A phase- and amplitude-modulated radiofrequency (RF) pulse is applied in unison with the magnetic field gradient so as to endow spins at different positions within the sample with a homogeneous excitation/inversion profile.

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RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
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<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC(8) - G01V 3/00 (2008.04) USPC - 324/321</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPTO text and image database (US, USPG-PUB), MicroPatent, Google Patents</p>														
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 2005/0134275 A1 (FRYDMAN) 23 June 2005 (23.06.2005) entire document</td> <td>1-25</td> </tr> <tr> <td>A</td> <td>US 6,836,113 B2 (ZHANG) 28 December 2004 (28.12.2004) entire document</td> <td>1-25</td> </tr> <tr> <td>A</td> <td>US 2004/0113616 A1 (MARKL et al) 17 June 2004 (17.06.2004) entire document</td> <td>1-25</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 2005/0134275 A1 (FRYDMAN) 23 June 2005 (23.06.2005) entire document	1-25	A	US 6,836,113 B2 (ZHANG) 28 December 2004 (28.12.2004) entire document	1-25	A	US 2004/0113616 A1 (MARKL et al) 17 June 2004 (17.06.2004) entire document	1-25
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<p>Name and mailing address of the ISA/US</p> <p>Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201</p>		<p>Authorized officer:</p> <p>Blaine R. Copenheaver</p> <p>PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774</p>												