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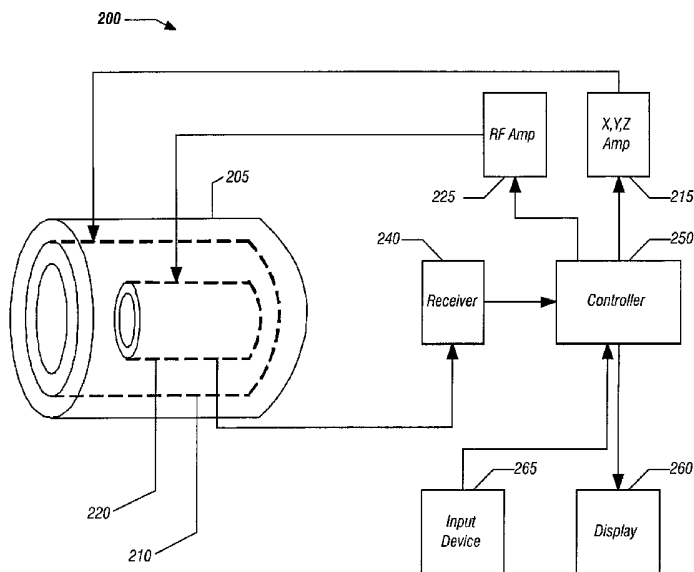
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(54) Title: USING MAGNETIC RESONANCE IMAGING TO DIRECTLY MAP NEURONAL ACTIVITY



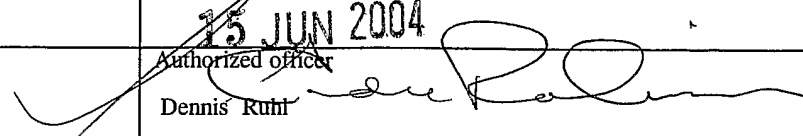
(57) Abstract: In one embodiment, the present invention includes a method for performing magnetic resonance imaging on a subject and directly mapping electromagnetic activity of neural firing of the subject via the magnetic resonance imaging. In another embodiment, the present invention includes a system comprising a magnetic resonance imaging scanner (205) and a controller (250) to detect a magnitude of magnetic resonance signal representing a neuronal magnetic field.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/29035

A. CLASSIFICATION OF SUBJECT MATTER																	
IPC(7) : A61B 5/055 US CL : 600/410																	
According to International Patent Classification (IPC) or to both national classification and IPC																	
B. FIELDS SEARCHED																	
Minimum documentation searched (classification system followed by classification symbols) U.S. : 600/410, 411, 418, 544, 545; 324/306, 307, 309; 424/9.2; 382/128																	
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																	
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST:fimri, stimulus, spatio-emporal, hemodynamic,metabolic, BOLD																	
C. DOCUMENTS CONSIDERED TO BE RELEVANT																	
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.															
X --- Y	US 6,321,105 B1 (JENKINS et al.) 20 November 2001, see col. 2 line 60 - col. 3 line 12, col. 7 lines 1-38	1-5, 12-17, 21-25, 34-36															
X --- Y	US 6,104,943 A (FREDERICK et al.) 15 August 2000, see col. 3-6	6-11, 18-20, 26-33															
Y	6,370,416 B1 (ROSENFELD et al.) 09 April 2002, see col. 6 lines 38-63 and col. 9 lines 20-35	6-8, 11, 18, 20															
Y,P	US 6,477,399 B2 (BISWAL et al.) 05 November 2002, see col. 3-7	6-8, 11, 18, 20, 23-33															
Y	US 6,009,208 A (MITRA et al.) 28 December 1999, see col. 4-6, 10 and 11	9-11, 18-20															
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.																	
<p>* Special categories of cited documents:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%; border: none;">"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td style="width: 10%; border: none;">"T"</td> <td style="border: none;">later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td style="border: none;">"E" earlier application or patent published on or after the international filing date</td> <td style="border: none;">"X"</td> <td style="border: none;">document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td style="border: none;">"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td style="border: none;">"Y"</td> <td style="border: none;">document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td style="border: none;">"O" document referring to an oral disclosure, use, exhibition or other means</td> <td style="border: none;">"&"</td> <td style="border: none;">document member of the same patent family</td> </tr> <tr> <td style="border: none;">"P" document published prior to the international filing date but later than the priority date claimed</td> <td style="border: none;"></td> <td style="border: none;"></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed		
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer  Dennis Ruht Telephone No. 308-0858																