APPARATO E METODO DI IMAGING SIMULTANEO TRAMITE RISONANZA DI SPIN ELETTRONICO E RISONANZA DI SPIN NUCLEARE

(RM2013A000711 20/12/2013)

Settori di applicazione industriale / Fields of use

Biomedicale, Diagnostica, Risonanza Magnetica Nucleare, Risonanza Magnetica Elettronica

Biomedical Sector, Diagnostics, Nuclear Magnetic Resonance, Electron Spin Resonance

Università degli Studi dell'Aquila

IMAGING TECHNOLOGY ABRUZZO

Titolare / Assignee

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Procedura brevettuale / Patent Procedure

Italiano / Italian

Priority date / data di priorità

20/12/2013

RM2013A000711

Stato / Status

Disponibile per cessione o licenza / Available for sale or license

CONTATTI

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Riferimenti Bibliografici / Bibliographic references

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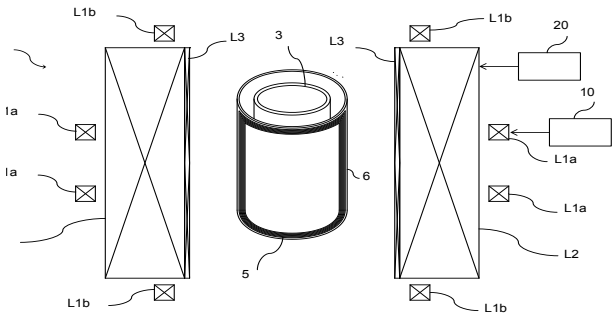

DESCRIZIONE / DESCRIPTION

La presente invenzione si riferisce al settore tecnologico degli apparati e dei metodi di imaging simultaneo tramite risonanza di spin elettronico (EPR/EPRI, Electron Paramagnetic Resonance ed Electron Paramagnetic Resonance Imaging) e risonanza di spin nucleare (NMR/MRI, Nuclear Magnetic Resonance ed Magnetic Resonace Imaging). In particolare riguarda un metodo ed un apparato per l'analisi simultanea con tecnica multimodale del comportamento e della distribuzione spaziale dei marcatori paramagnetici (spin probes) presenti in un campione di interesse biomedico.

The invention discloses a novel method and apparatus for simultaneous nuclear (MRI) and electron (EPRI) magnetic resonance imaging of paramagnetic samples. It comprises: a first coil (L1a, L1b) and a first supply module (10) of the first coil adapted to drive the first coil (L1a, L1b) so that it produces a constant magnetic observation field for detecting the electron spin and the nuclei spin of an observed sample, the constant magnetic observation field having a relatively reduced intensity; a second coil (L2) and a second supply module (20) of the second coil (L2) adapted to drive the second coil (L2) so that it produces a pulsed magnetic field adapted to polarise the nuclei such that these are aligned along a magnetic induction vector, said pulsed magnetic field having a relatively high intensity.