



M-CUBE
MetaMaterials-**MRI**

Rencontres FET Open 2019

Redha Abdeddaim

Paris, 1 Février 2018



UMC Utrecht



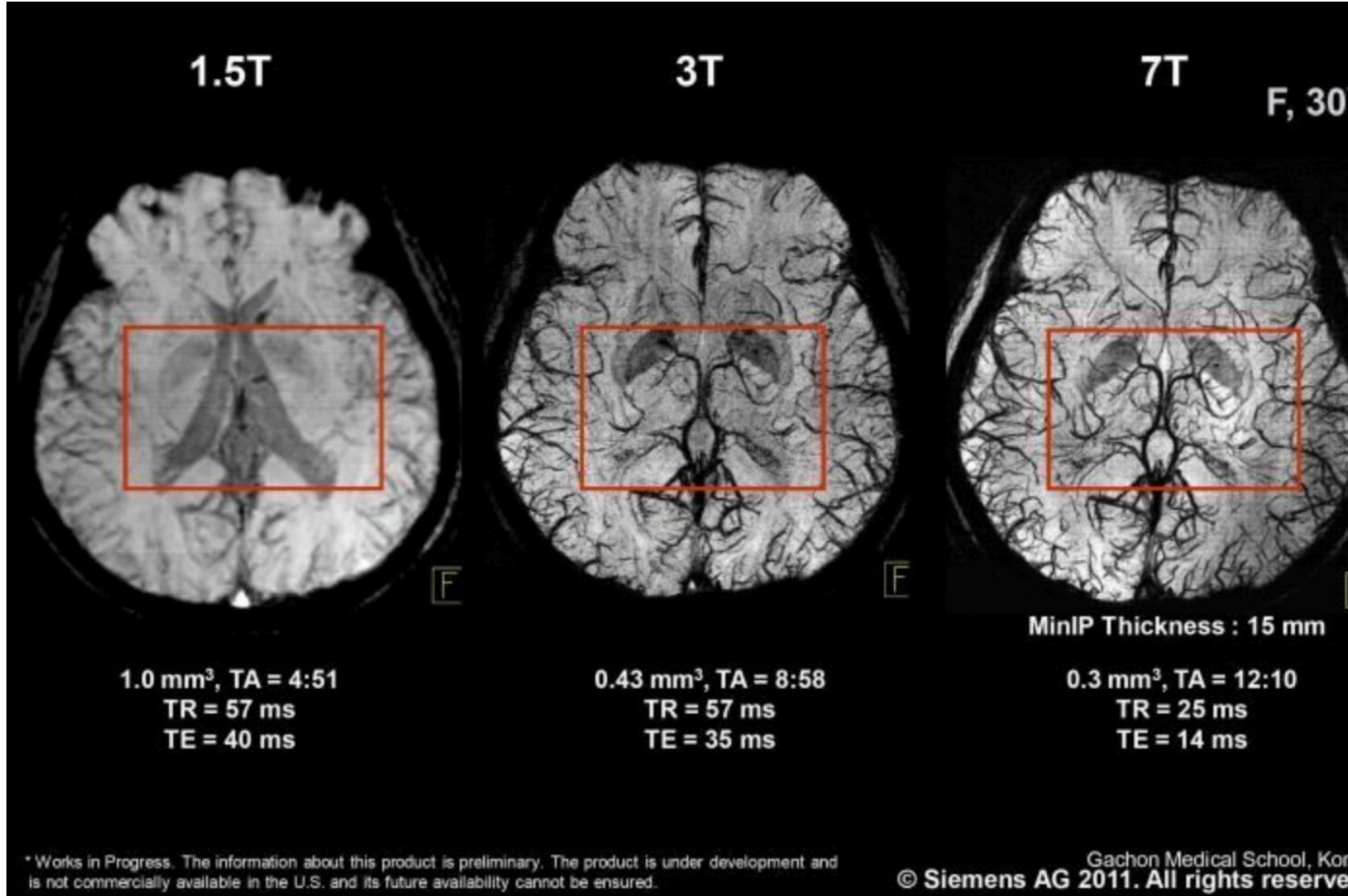
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 736937



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MetaMaterials-MRI



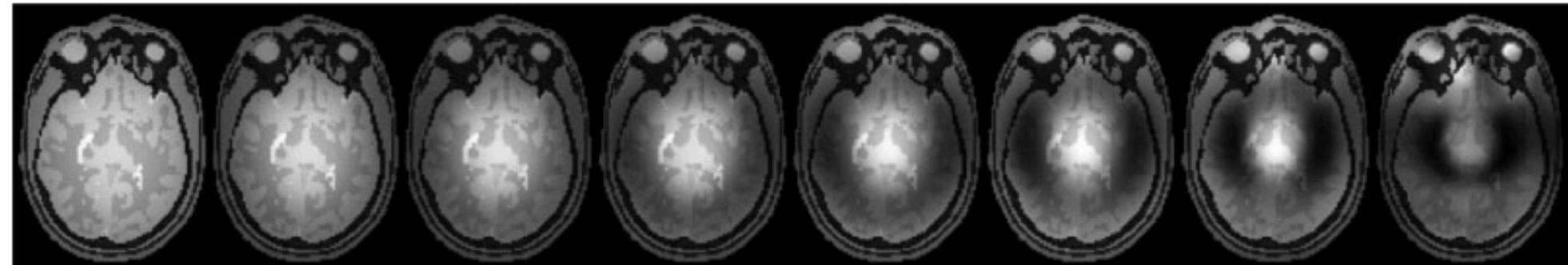
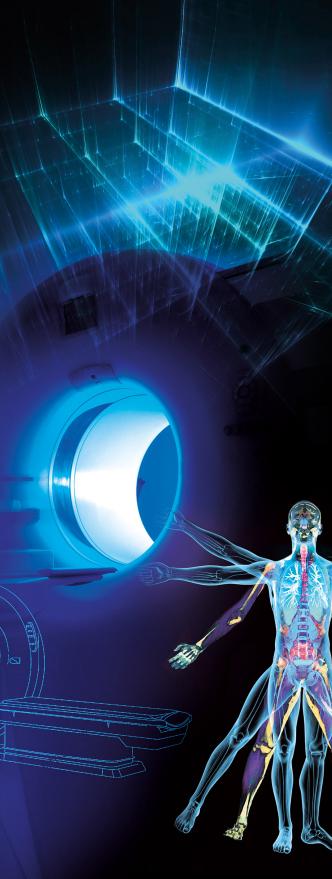
M-CUBE: UN VRAI ENJEU





M-CUBE: UNE VRAI PROBLÉMATIQUE

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MetaMaterials-MRI



3T

4T

5T

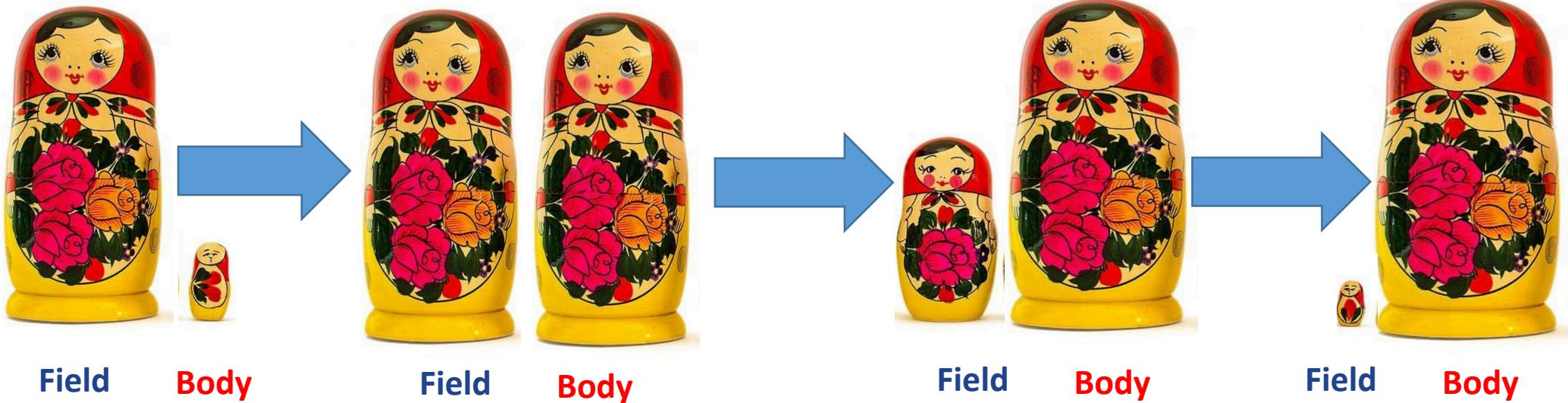
6T

7T

8T

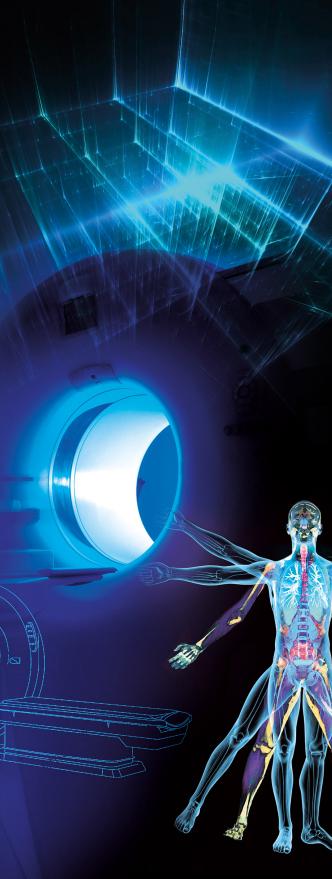
10T

12T

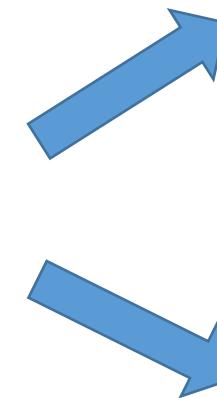




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M-CUBE: *UN VRAI RISQUE SCIENTIFIQUE*

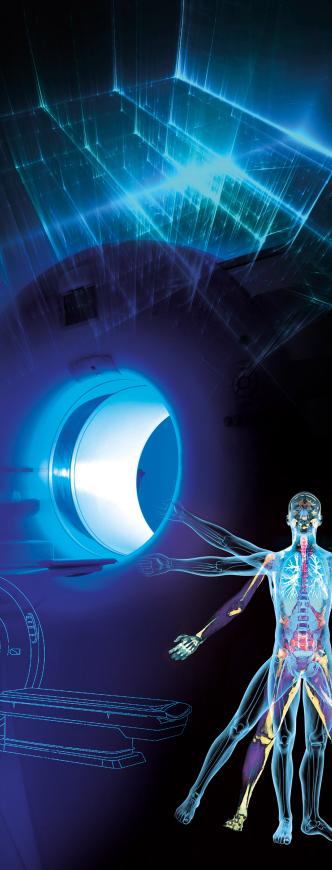


Une antenne corps Entier

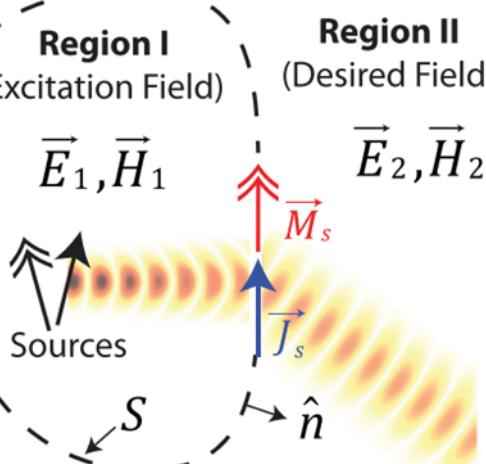
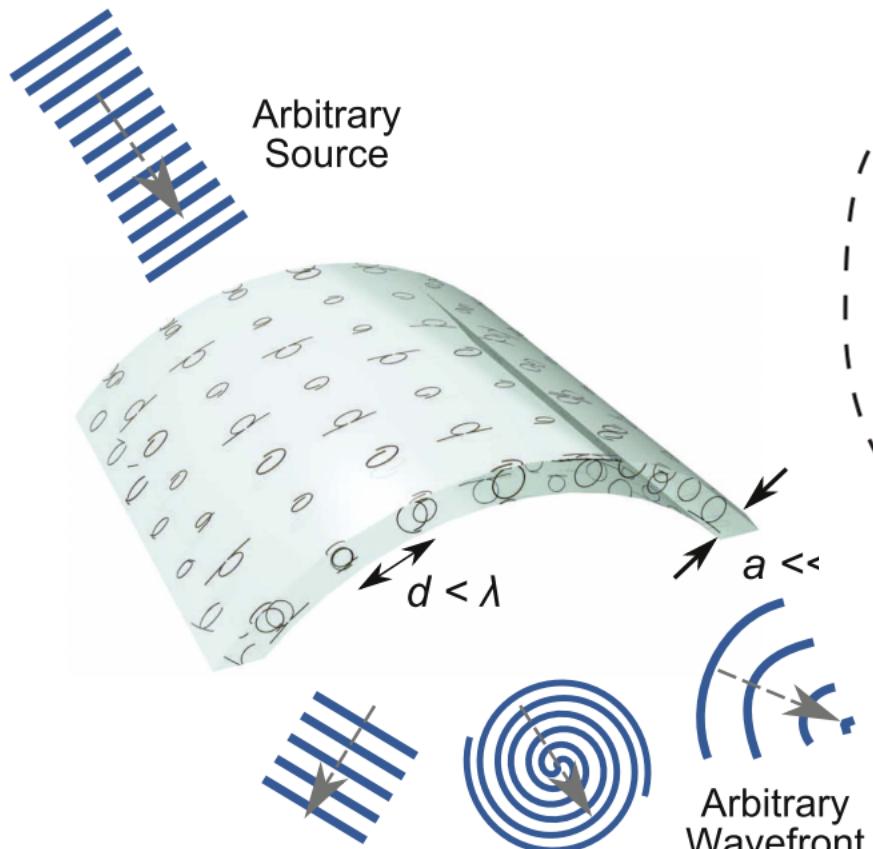
Différentes antennes pour
chaque partie du corps



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M-CUBE: *UNE SOLUTION POSSIBLE*

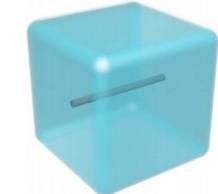


Wave front control by
engineering microstructure
of unit cells
**(the engineered
electromagnetic boundary)**

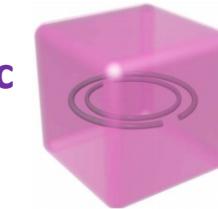
Sergei A Tretyakov, Journal of Optics, 2016

PRL 110, 197401 (2013)

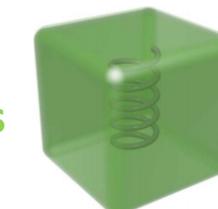
Electric
dipoles



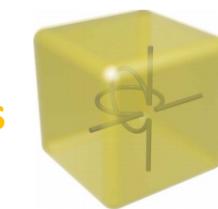
Magnetic
dipoles



Chiral
particles



Omega
particles





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M-CUBE: PAS SEUL

Les Contrats Européens

Le service des Contrats Européens, créé en 2004 pour accompagner les personnels de l'Université et de l'AP-HM dans leurs démarches européennes, opère de façon transversale de la phase de détection au management et gestion financière des projets, essentiellement dans le cadre de [Horizon 2020](#).

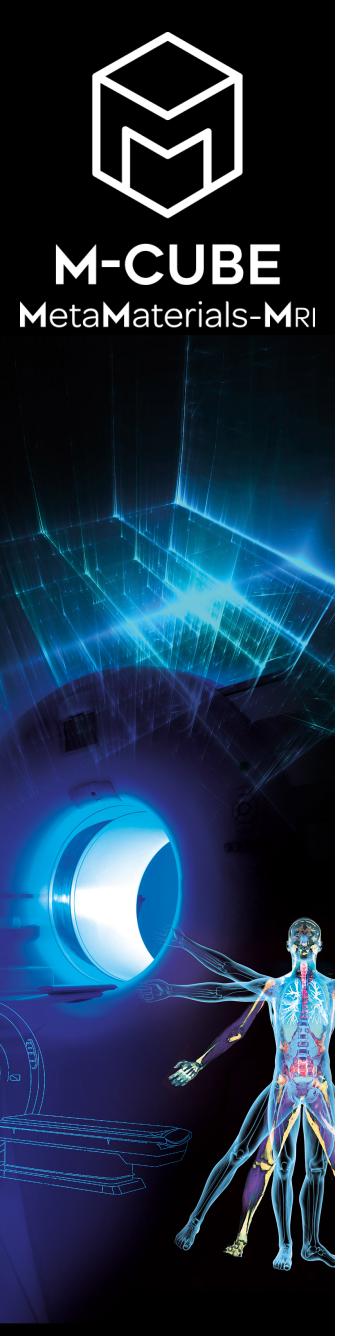
Composée de [9 personnes](#), elle gère actuellement [une centaine de projets](#) de recherche européens.

Ses procédures de gestion financière et de suivi des projets ont conduit à l'obtention en juillet 2012 d'une certification européenne ([certificat sur la méthodologie](#)) permettant ainsi à l'Université de devenir le premier établissement d'enseignement supérieur en France et l'un des premiers en Europe à être ainsi distingué.

Les [missions](#) du service Contrats Européens :

- Détection de projets et sensibilisation des équipes AMU
- Aide au montage de projets (ingénierie)
- Négociation et finalisation des Accords de Subvention
- Gestion administrative et financière des projets
- Management des projets sous coordination AMU





M-CUBE: UN ÉQUILIBRE



UMC Utrecht

ITMO UNIVERSITY

Aix*Marseille
Université
Initiative d'excellence

MR
Colls

Aalto University



MULTIWAVE

cea

UCL
Université catholique de Louvain

Aix*Marseille
université
Initiative d'excellence

cea

CNRS

UCL
Université catholique de Louvain

UMC Utrecht

Aalto University

ITMO UNIVERSITY

Australian National University

MULTIWAVE

MR
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M-CUBE: *INTERDISCIPLINAIRE*

MILSTONNES !!!!!!!

Industriels



Médecins



Livrable !!!!!!!

Centres IRM



Académiques

BUDGET !!!!!!!





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M-CUBE: *DISSÉMINATIONS*

Accueil Notifications Messages Recherchez sur Twitter Tweeter

Aix-Marseille Université Initiative d'excellence

cea

CNRS

UCL Université catholique de Louvain

UMC Utrecht

A! Aalto University

ITMO UNIVERSITY

Australian National University

MULTIWAVE

MR coils

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Euroopean Commission

Tweets 544 Abonnements 404 Abonnés 167 J'aime 1518 Listes 2

Abonné

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M-CUBE MetaMaterials-MRI

MetaMaterials antenna for ultra-high field MRI

THE PROJECT PARTNERS PUBLICATIONS PRESS RELEASE EVENTS JOBS VIDEOS

META 2019 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics

META 2019 23-26 JULY 2019 Instituto Superior Técnico, Lisbon - Portugal www.metaconferences.org





M-CUBE: *ET APRES*



UMC Utrecht



Aalto University



Gender
Balanced



Young
researchers

20
nationality



Université
catholique
de Louvain



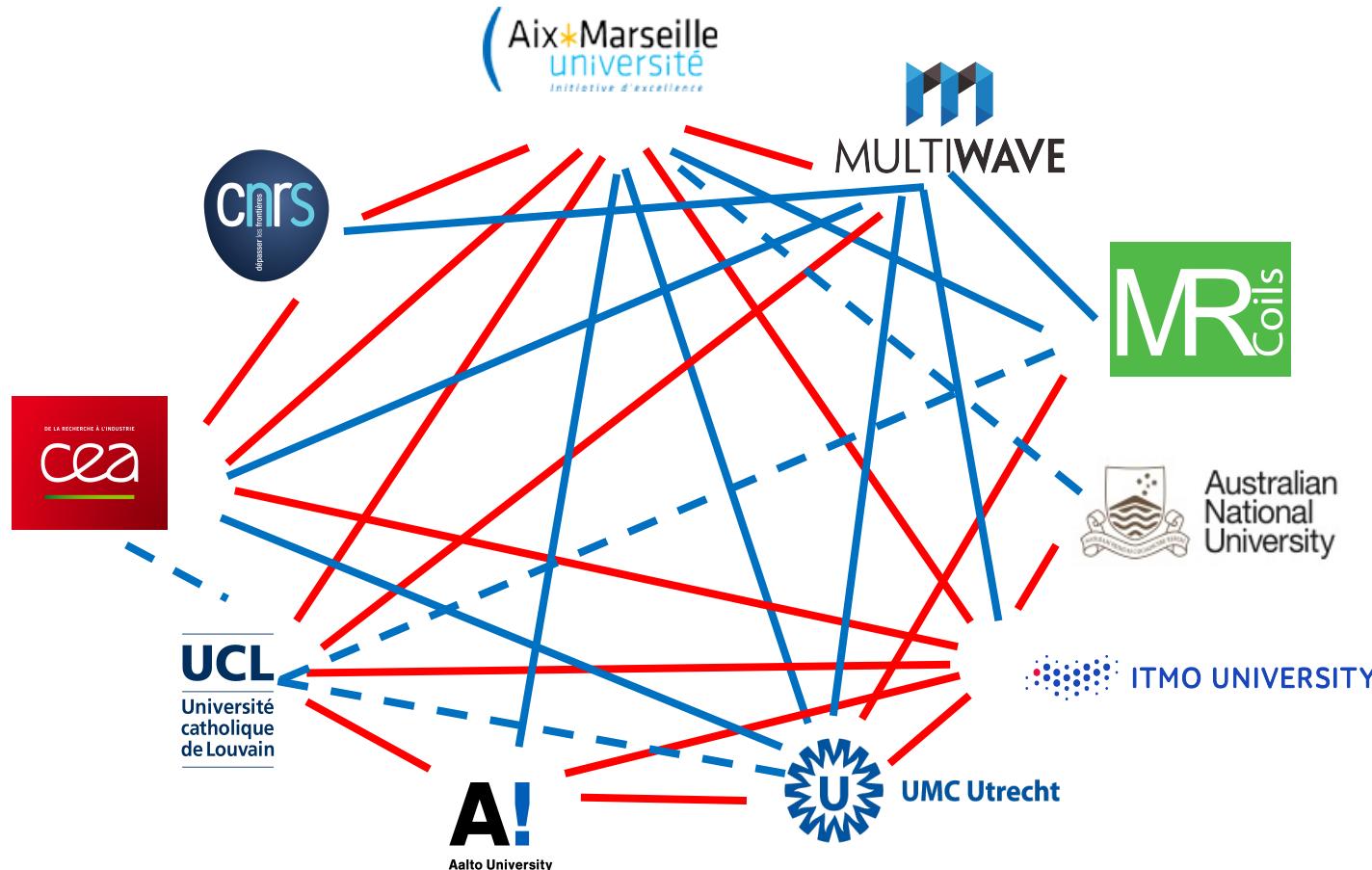
ITMO UNIVERSITY



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M-CUBE: *RUNNING COLLABORATIONS*





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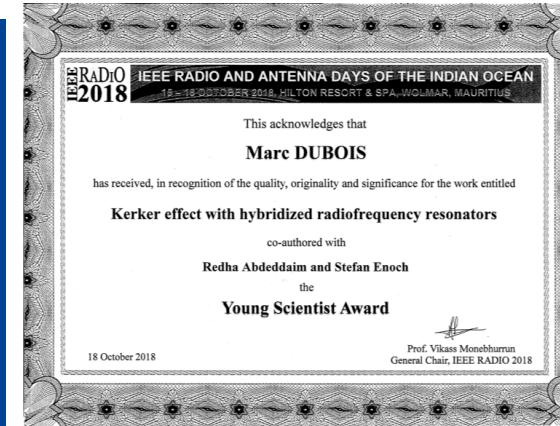


M-CUBE: 16 RICL/20 PROCEEDINGS/ 5 BREVETS/10 PRIX

Home > Research and Innovation > Projects > Success Stories >

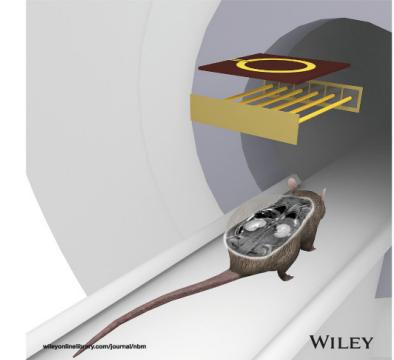
Improving disease detection through ultra-high-field MRIs

The widespread adoption of magnetic resonance imaging (MRI) revolutionised clinical medicine, and the revolution has not stopped. Scientists in an EU-funded project are exploring ways to make MRIs even more effective - aiming to help patients get the best possible treatment through early disease detection.



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NMR
IN BIOMEDICINE



WILEY



CATEGORY WINNER

Multiwave Technologies

Multiwave's 7T MRI antenna for the head allows to overcome the inhomogeneity issues due to the ultra high field using an embedded metamaterial (HMA) to enhance the field in the temporal lobes and the cerebellum. Using a standard antenna, brain conditions such as epilepsy or MS could be missed.

Voting is closed. 1865 users have voted.



FINALIST

Fresnel Institute - Aix-Marseille University

The metamaterial antenna improve radically medical imagery of body and brain, it creates a "patient-centered" solution that will pave the way for more accurate diagnostics in the context of personalized medicine enabling the earlier detection of diseases.

Voting is closed. 3244 users have voted.



Genomineerd

Talent Award
Bommelerwaard
2018

MR Coils BV te Zaltbommel

Michel Italiander

Britt & Lynn te Kerkdriel

Britt Werner en Lynn van Roij

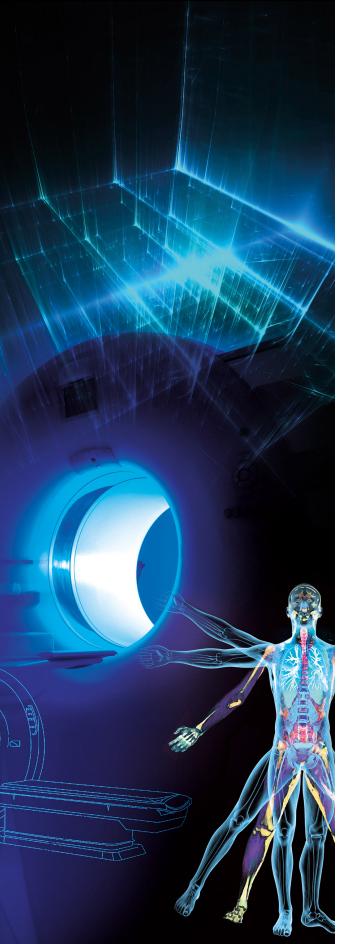
Blokhuutboot.nl te Heerewaarden

Glenn Cornelissen





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MetaMaterials-MRI



mcube-project.eu