Nuclear magnetic resonance based metamaterials

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ABSTRACT

The present project aims at investigating artificial structured materials, whose electromagnetic radio-frequency response is strongly driven by a nuclear magnetic resonance: Nuclear magnetic resonance based metamaterials. By including different constituent materials in the metamaterial configuration as well innovative geometrical arrangement of these materials, we aim at designing metamaterials characterized by unprecedented electromagnetic properties specifically advantageous for magnetic resonance imaging. We stress that the nuclear magnetic resonance based metamaterials will be easier to fabricate and that they could radically advance MRI performance with potential applications in material science and clinical applications.