



Antiferromagnetism of hybrid metamaterials

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(Submitted on 7 Jul 2011 (v1), last revised 11 Nov 2011 (this version, v2))

We analyze a metal-dielectric structure composed of a silicon nanoparticle coupled to a stack of split-ring resonators, and reveal the possibility of optically-induced antiferromagnetic response of such a hybrid meta-molecule with a staggered pattern of the induced magnetization. We show that a hybrid metamaterial created by a periodic lattice of the meta-molecules supports antiferromagnetic modes with a checker-board pattern and the propagation of spin waves, opening new ways for manipulating artificial antiferromagnetism at high frequencies with low-loss materials.

Comments: The paper has been withdrawn by the authors due to publisher's policy

Subjects: **Optics (physics.optics)**; Mesoscale and Nanoscale Physics (cond-mat.mes-hall)

Cite as: [arXiv:1107.1348](#) [physics.optics]
(or [arXiv:1107.1348v2](#) [physics.optics] for this version)

Submission history

From: Andrey Miroshnichenko [[view email](#)]

[v1] Thu, 7 Jul 2011 11:31:14 GMT (873kb,D)

[v2] Fri, 11 Nov 2011 01:34:55 GMT (0kb,I)

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