

Backward waves and negative refractive indices in gyrotropic chiral media

This article has been downloaded from IOPscience. Please scroll down to see the full text article.

2006 J. Phys. A: Math. Gen. 39 15057

(<http://iopscience.iop.org/0305-4470/39/48/013>)

View [the table of contents for this issue](#), or go to the [journal homepage](#) for more

Download details:

IP Address: 171.66.16.108

The article was downloaded on 03/06/2010 at 04:57

Please note that [terms and conditions apply](#).

ADDENDUM

Backward waves and negative refractive indices in gyrotropic chiral media

Jian Qi Shen^{1,2} and Sailing He^{1,2}

¹ Division of Electromagnetic Theory, Alfvén Laboratory, Royal Institute of Technology, S-100 44 Stockholm, Sweden

² Centre for Optical and Electromagnetic Research, Joint Research Centre of Photonics of the Royal Institute of Technology, Sweden and Zhejiang University, Hangzhou Yuquan 310027, People's Republic of China

E-mail: jqshen@coer.zju.edu.cn

Received 8 September 2006

Published 15 November 2006

Online at stacks.iop.org/JPhysA/39/15057

Abstract

This addendum states the relationship between our recent paper and Mackay *et al*'s work on the negative refraction in gyrotropic chiral media, and emphasizes the advantages of their work that we did not mention in our recent paper.

PACS numbers: 78.20.Ci, 74.25.Nf, 42.55.Sa

Our recent paper [1] studied the negative refractive index, negative equivalent permittivity/permeability and related quantum effects in a gyrotropic chiral medium. In the second part of our paper, we proposed the possibility of negative refraction effects in such anisotropic material. In the literature, however, Mackay and Lakhtakia were the first ones to suggest such negative refraction effects [2]. In their reference [2], they studied the negative phase-velocity (NPV) propagations with arbitrary directions in Faraday chiral media, and got the general and complete results. In the footnote of our paper [1], we mentioned Mackay and Lakhtakia's work [2], but did not emphasize the advantages and importance of their work. It seems to readers that we share the priority of this finding with Mackay and Lakhtakia. But this is not the truth. In this addendum, we should emphasize three points: (i) it is Mackay and Lakhtakia who first suggested the negative refraction effect in these anisotropic chiral media; (ii) the gyrotropic chiral material considered in our paper [1] is only one of the special kinds of Faraday chiral materials considered in [2]; (iii) the results obtained by Mackay and Lakhtakia were more general and complete than ours (we studied the wave propagation only in a special direction while Mackay and Lakhtakia considered the propagations in arbitrary directions). We should make this statement in order to avoid affecting the priority for copyright of Mackay and Lakhtakia's work and to prevent any future controversy regarding the priority.

References

- [1] Shen J Q and He S 2006 *J. Phys. A: Math. Gen.* **39** 457
- [2] Mackay T G and Lakhtakia A 2004 *Phys. Rev. E* **69** 026602