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Longitudinal elliptically polarized electromagnetic waves in anisotropic magnetoelectric split ring composites WANG WEIHUA, Fudan University, S.T. CHUI, University of Delaware, LEI ZHOU, Z.F. LIN, Fudan University — We study the propagation of plane electromagnetic waves through different systems consisting of arrays of split rings of different orientations. We find a mode such that the electric field becomes elliptically polarized with a component in the **longitudinal** direction (i.e., parallel to the wave vector). Even though the group velocity and the wave vector are parallel, the Poynting vector possesses a component perpendicular to the wave vector. The speed of light can be real even when the product $\epsilon\mu$ is negative. Other novel properties are explored.

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