

Special Issue Reprint

Higher Symmetries and Its Application in Microwave Technology, Antennas and Metamaterials

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Edited by
Guido Valerio
Oscar Quevedo-Teruel

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Artificial materials have been widely studied and used in photonics and microwaves in the last few decades. Recent research has proven that the introduction of specific higher symmetries in each cell of a periodic medium is an effective approach to obtain unprecedented exotic behaviors and to overcome the current limitations of these devices. For example, simple symmetries of a purely spatial type (glide or twist transformations) can have a huge impact on the properties of the resulting materials, thus defining wideband behaviors for flat lenses or large stop bands for novel EBG materials.

This Special Issue opens with a novel discussion on the effect of time-reversal symmetries in antenna theory and presents new structures exploiting symmetries for antenna and microwave components, such as flat lenses, helix antennas, and gap-waveguides.

Finally, new modeling methods are discussed for the study of wave propagation along glide surfaces and twist lines.

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