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# Advances in Electromagnetic Metamaterials: Physics, Devices and Applications

Guest Editor:

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#### Message from the Guest Editor

Electromagnetic (EM) metamaterial is a man-made material deliberately engineered to exhibit some electromagnetic properties that are difficult or impossible to find in natural materials. The novel properties of negative/zero index of refraction, sub-wavelength super lenses, electromagnetic invisibility cloaks, omnidirectional hyperreflective multilayer film, enhanced nonlinearity, etc., exhibit impressive applications that extend beyond those of conventional materials. The application techniques of EM metamaterials on optical filters, remote aerospace, medical devices, sensor detection, smart solar power collectors, radomes, optical communication and lenses, high-gain antennas, etc., are attracting increasing interest. The innovative concepts of metamaterials will lead to new phenomena and practical devices, which will be an important direction of future developments.

Research on electromagnetic metamaterial involves many different fields, such as electrical engineering, electromagnetics, optical engineering, solid state physics, microwave and antenna engineering, optoelectronics, material sciences, nanoscience, and semiconductor engineering.



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# **Editor-in-Chief**

#### Message from the Editor-in-Chief

**Prof. Dr. Giulio Nicola Cerullo** Dipartimento di Fisica, Politecnico di Milano, Piazza L. da Vinci 32, 20133 Milano, Italy As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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