

Electromagnetics and Matter Research Group (GEM) at Polytechnic University of Cartagena

Activity fields:

The Electromagnetics and Matter Research Group (GEM) was created at the Polytechnic University of Cartagena in 2004 with members from this and other universities. Currently it is formed by five doctors in telecommunication engineering and three telecommunication engineers. GEM is specialized in the study of communication and industrial systems with profitable characteristics thanks to the behaviour of the materials in the system with the electromagnetic radiation. Among these systems, we can list microwave heating processes, shielding of electronic equipment, constructive structures for minimizing the radar cross section or filtering or, in general, any process of energy transmission by means of electromagnetic waves.

Two main aspects for the study of this type of systems are an accurate knowledge of the electromagnetic properties of the materials that set up the system, and the use of electromagnetic simulation tools. In this sense, GEM has developed new techniques for dielectric characterization of materials and electromagnetic simulation software that allow the analysis and design of these systems as a previous stage to the manufacturing.

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