

# Efficient Methods for Radiation, Scattering and Propagation

A. Álvarez, V.E. Boria, A. Coves, M.V. Andrés

Grupo de  
Electromagnetismo Aplicado  
a Telecomunicaciones  
Univ. Polit. Cartagena  
alejandro.alvarez@upct.es

Grupo de Aplicaciones  
de Microondas  
Univ. Polit. Valencia  
vboria@docm.upv.es

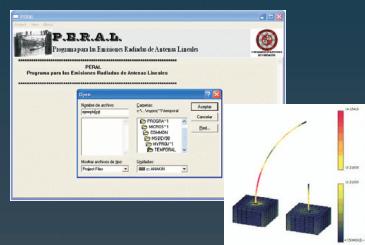
Dpto. de Física y  
Arquitectura de  
Computadores  
Univ. Miguel Hernández  
angela.coves@umh.es

Grupo de  
Semiconductores y  
Fibra Óptica  
Univ. Valencia  
miguel.andres@uv.es

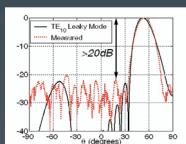
## Radiation Applications

### wire antennas

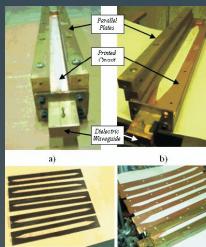
Software PERAL for  
the design of wire  
antennas mounted on  
board of submarines



### leaky-wave antennas

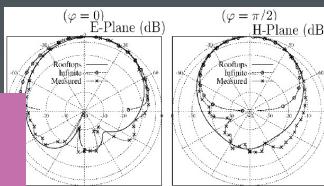
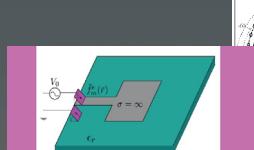


Novel leaky-wave  
antenna in hybrid  
waveguide-printed  
technology

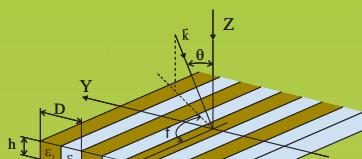


### $\mu$ strip antennas

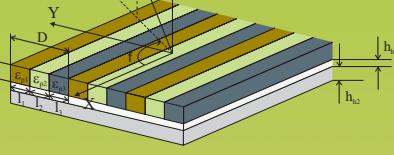
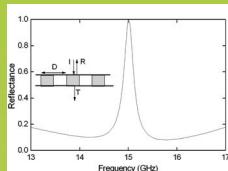
Finite size  
dielectric  
layers



## Frequency Selective Surfaces



Dielectric waveguide  
grating acting as a  
frequency selective  
surface



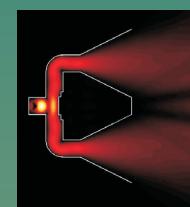
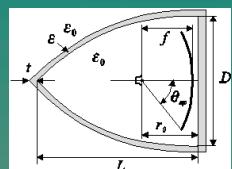
Description of a three-  
plates polarizer rotator  
system



## Scattering Applications

### electrically large objects

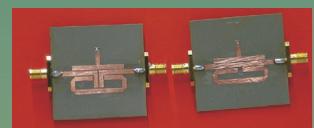
Dielectric 2-D radome with  
a complex source  
excitation and a parabolic  
metallic reflector



Two horn antenna  
system with optimized  
feeding network

### passive circuits

Novel compact  
transversal filters in  
microstrip technology



## New Materials for Antennas

### EBG substrates for printed array antennas



1-D scanning array  
composed of 8 elements  
with PCS-EBGs

### applications of metamaterials

Prototype of a  
metamaterial-based  
filter in coplanar  
technology

