

Projects

Written by Administrator

Wednesday, 31 August 2011 09:21 - Last Updated Monday, 27 November 2017 09:41

Featured projects

LIFETEC - Fighting Forest Fires Using Electronic and Communication Technologies: LIFETEC

LIFE16 ENV/ES/000559

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[Enabling innovative radio technologies por 5G networks \(Ref. TEC2014-55735-C03-3R \)](#)

Enabling-5G is an applied research project in the field of telecommunications that is developed during the years 2015 to 2017. The main objective is the investigation and evaluation of radio technologies for different scenarios in order to give an answer to the key challenges of 5G. The radio technologies to be studied under this project are beamforming, advanced MIMO systems, new antenna designs, RF architecture, interference mitigation and management techniques, measurement and modeling of radio channel propagation and radio network planning.

The Spanish Government, Ministry of Economy, National Program of Research, Development support this project and Innovation oriented to Challenges of the Society (project number

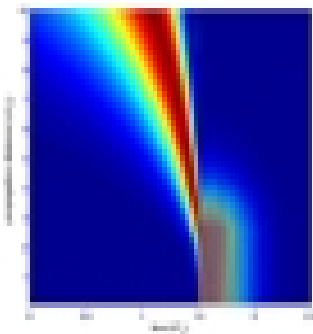
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TEC2014-55735-C3-R)

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[Mellora da propagación electromagnética mediante o emprego conxunto de formas de onda precursoras e materiais de transmisión extraordinaria para a súa aplicación en sistemas avanzados en banda de microondas e THz \(Ref. EM2012/138\)](#)

A propagación dun pulso a través dun medio dieléctrico lineal causal dispersivo constitúe un problema clásico en teoría de propagación electromagnética que aínda mantén un considerable interese e importancia debido ás moitas cuestións teóricas prantexadas que aínda permanecen abertas dende a súa pronta análise arredor de 1914. Entre estas cuestións a principal, dende o noso punto de vista, é a de avaliar a aplicabilidade deste fenómeno electromagnético ligado a medios de propagación de características dieléctricas dispersivas en frecuencia amplamente presentes na natureza e no entorno habitual de sistemas de radiocomunicación, e noutros que van de radar a diagnóstico médico.

O campo de estudio proporcionado polo fenómeno físico das ondas precursoras resulta moi amplo e practicamente irresoluto. O proxecto aquí exposto pretende por un lado explorar tanto a parte de formulación e simulación teórica como a de corroboración experimental, analizando a forma de empregar os beneficios proporcionados por estas ondas grazas a interacción con estruturas metamateriais que corrixan, revertan ou reforcen a presenza deste campo electromagnético dotado de grande porción de enerxía asociada.

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Neste proxecto, buscamos desenrolar unha nova forma de afrontar a análise dos precursores para lograr a demostración empírica destas ondas e as súas propiedades no campo dos metamateriais e materiais artificiais, así como demostrar a aplicabilidade do conxunto en diferentes bandas de frecuencia. A finalidade última é explorar moitas das preguntas abertas que plantexa este tema ofrecendo respostas de elevado interese para a comunidade científica.

Entre as saídas deste proxecto tamén podemos incluír a demostración da aplicabilidade das estruturas metamateriais. O traballo de investigación ten como obxectivo acadar o deseño así como a fabricación de materiais artificiais e metamateriais económicos e válidos nunha ampla variedade de aplicacións aparte das consideradas nesta memoria.

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[Sicomoro \(Communication Systems for Emergency Environments\), National Plan for R+D+i.](#)

SICOMORO is a recently launched research project funded through the Spanish **Natio**
nal Plan for R+D+i

by the Research Secretary of State

, **Spanish Ministry of Economy and Competiveness.**

The project code ID is TEC2011-28789. The

aim of SICOMORO

project deals, in a first step, with the design and application of smart antennas, based on the definition of requirements at system level, applied to communication systems on emergency or disaster environments. Simultaneously, a system demonstrator will be developed to integrate the works performed of the full research group, both at system level as at radio subsystem (antenna and propagation channel). Finally, the project will propose new measurements procedures for

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smart antennas

, active or

MIMO

kind, as well as the set-up of an EMI/EMC chamber to include the immunity measurements of the developed antennas.

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[Telemonitoring of Elderly Living in Rural Areas, Incite, Xunta de Galicia.](#)

Telemonitoring of Elderly living in rural areas (10SEC322021PR) is a Regional Project funded through the

INCITE Programme

by

Xunta de Galicia

. The aim of the project is to develop a radio system that will allow elderly location and monitoring their vital parameters from a remote center. Several radio technologies will be considered to achieve radio coverage in rural areas out of the service areas of current mobile phone networks. Project was officially launched in

2010

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[Project RICANA \("Radar Imaging: Challenges and New Approaches"\), FP7 Framework Programme.](#)

RICANA ("Radar Imaging: Challenges And New Approaches") is an European Project funded through the FP7-PEOPLE_IOF Programme. The RICANA project is concerned with the improvement of Radar Imaging technology and its application to Ground Penetrating Radar (GPR), or Through Wall Radar (TWR) systems. The general milestone of the RICANA project is to achieve novel advances in the Radar Imaging field so that a disruptive technology can emerge.

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[Impact of LTE technology on communal TV distribution systems, funded by the Spanish Ministry of Industry, Energy and Tourism .](#)

The project objective is the analysis of the interferences that LTE deployment will produce in the UHF band in communal TV distribution systems. The changes or improvements that should be adopted to mitigate the impairments would be determined. The interferences on MATV systems will be produced mainly by the LTE downlink signals (from LTE base station to TV receivers), but also by the uplink signals.

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[European Project FARM2FORK \(“From Farm To Fork”\), funded by CIP ICT PSP Programme .](#)

The aim of the project is to showcase RFID technology to SMEs in the food & drink industry and to identify and trace food information to fulfill society’s needs. The purpose of the F2F project is to demonstrate the use of RFID at all stages of the production and sales chain, allowing products to be tracked across Europe from the producer (farm) to the end consumer (fork). The project will federate international producers, processors, logistics, retailers and consumers around a data system which will deploy standardised solutions to allow the traceability and authentication of foodstuffs.

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[Radio channel characterization for low-elevation satellite communications, funded by the Spanish Ministry of Science and Technology](#)

CROCANTE (Radio channel characterization, optimization and calibration of antenna “GEODA” for space communications) is a research project funded by Spanish Ministry of Education and Science through the National R+D+i Plan. The aim of the project is to develop a demonstrator of the antenna GEODA. Universidade de Vigo is in charge of subproject 2: Characterization and Modeling of the Low-Elevation Satellite-Earth Radio Channel at L-band.

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[Development of wireless sensor networks for environmental tracking and for managing extensive agriculture and ecological cattle.](#)

Development of wireless sensor networks for environmental tracking and for managing extensive agriculture and ecological cattle. The objectives are focused on the control and tracking of cows or other cattle moving freely along forests and grasslands; and on the measurement and tracking of environmental parameters in high standing agriculture (mainly vineyards). **Xunta de Galicia, INCITE 08MRU045322PR**



[Study of the EM pollution in the environment of transmitting antennas](#)

Temporal variations of electric field levels have been monitored over a period of a week at seven different urban locations. It has been found that electric field level exhibits an important random variation with time. **Xunta de Galicia, Project Ref. PGIDIT02TAM32201PR**



[Tracking Beacons](#)

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Tracking Beacons Accidents suffered by small ships are fatal due to the limited safety measurements. The proposal of this work is the improvement of life vests incorporating a small GPS receiver and GSM/GPRS and VHF transmitter to guarantee the compatibility to GMDSS.
Xunta de Galicia, Project Ref. PGIDIT05TIC32203PR



[Vegetal barriers for minimising electromagnetic pollution at cellular phone bands](#)

The use of rows of trees as barriers to minimise electromagnetic pollution in sensitive areas, is proposed and tested at GSM and UMTS bands. Results show diverse degrees of attenuation depending on the specie, and even on the specimen.



[Propagation impairments mitigation techniques for broadband WLANs](#)

Radio propagation experiments have been conducted to analyze the need of fading mitigation techniques at 40 GHz and 60 GHz. Results show that some kind of fading mitigation technique could be necessary.

Spanish Ministry of Science and technology. TEC 2005-00330