

TRC: Telecommunications Research Centre

Faculty



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Projects

Top Amplifier Research Groups in a European Team (TARGET)

Europe has a remarkable abundance of excellent research groups in the field of microwave amplifier research, in particular in characterisation, modelling, design, and linearization. To harness the collaborative potential of this European resource for the benefit of European industry and economy the European Union established the TARGET network of Excellence under its 6th framework programme. TARGET now is a major vehicle of European research in the field of microwave power amplifiers for broadband wireless access by creating a progressive and durable integration of research capacities of the network partners. <http://www.target-net.org>.

Mobile eLearning and Virtual University Information Systems

This is an Irish Government Higher Education Authority (HEA) Target-Strategic Initiative 2004-7 project. The goal is to exploit the growth of advanced wireless technologies over recent years to improve student access to on-line educational resources and eLearning applications that offer "anytime, anyplace, anyhow" access to the desirable eLearning content independently of time, place and pace through the means of wireless systems such as Bluetooth, WLAN, GPRS/GSM and 3G cellular. Through this, innovative technological support for the eLearning process is being pushed to include and exploit new and advanced wireless technologies. The project includes the development of *mobile eLearning services* based on intelligent access agents used as personal helpers for students, e.g. through Internet caching, synchronization of off-line eLearning process with on-line eLearning system using *InfoStations*.

Academic Network on Wireless Internet Research in Europe (ANWIRE)

The major thrust in this European Union's IST project ANWIRE work programme was the laying the preliminary groundwork for 4G/ next generation wireless networks concepts and requirements, as well as contributing towards the design and standards' specification roadmaps for these future networks. A greater integration of European research expertise and resources in two key overlapping areas - wireless Internet and Reconfigurability in mobile wireless networks was a special focus of the project.

Protocol Foundations for ABC&S Paradigm Realisation in Future 4G/5G Wireless Communication Networks

This Science Foundation Ireland (SFI) 'Basic Research' project aims to create strategic infrastructural and protocol development concepts to enable a user-friendly and user-driven always best connected and served (ABC&S) wireless communications environment, a key characteristic for future 4G/5G wireless networks. Innovative thinking and new paradigms are to be conceived in relation to openness, market entrance and operation of access networks and the delivery of communication and application services to users based on the creation of a new consumer based wireless infrastructure. IEEE Wireless Communications, February 2007, article "Towards a Ubiquitous Consumer Wireless World" by O'Droma and Ganchev, sets out the novel infrastructural framework for this new wireless communications paradigm.

Traffic and QoS Management in Wireless Multimedia Networks

This is a European Science Foundation (ESF) Coordinated Action in Science and Technology, COST 290, 2004-2008. The main objective is to increase the knowledge on future advanced Multiservice Wireless Networks (MWNs) and specifically on traffic nature and behaviour and its impact on network architecture, performance and planning. Special attention is being given to Quality of Service (QoS) and related aspects in both access networks and core networks in the presence of mixed multimedia traffic. To accomplish this, new analytical tools, software implementations and prototypes are being developed. <http://www.cost290.org/>

Modelling and Simulation Tools for Research in Emerging Multi-service Telecommunications

This is a European Science Foundation (ESF) Coordinated Action in Science and Technology, COST 285, 2003-2007. The main objective is to enhance existing modeling and simulation tools, and develop new ones, for research in emerging multi-service telecommunications networks. To achieve these aims of the objective several tasks will be undertaken under the headings: Model Performance Improvement, Multilayer Traffic Models, and Model Verification, Validation. <http://www.cost285.itu.edu.tr>

External Consultative Research Directors:

- Communication Networks and Protocols:*
- Prof. Hamid Aghvami, Kings College London, UK.
 - Prof. Yevgeni Koucheryavy, University of Tampere, Finland
 - Dr. Matthias Siebert, T-Systems Enterprise Services GmbH, Mobile & Wireless Solutions, Deutsche-Telekom, Germany
 - Prof. Sergio Palazzo, University of Catania, Italy
- DSP and smart antenna array processing:*
- Prof. Benoit Champagne, McGill University Canada.

External Associated Research Faculty:

- Prof. Ioan Salomie, University of Cluj, Romania
- Dr. Vasile Dadarlat, University of Cluj, Romania
- Prof. Hakima Chaouchi, Institut National des Telecommunications- INT, France
- John Kennedy (Intel, Ireland)
- Prof. Gennady Yanovsky, St. Petersburg State Telecommunications University, Russia

Collaborating Universities and Industries