------------------------------------ CONFERENCIA INVITADA ------------------------------------

Fecha: 22 de Junio
Hora: 12:00 - 13:30
Lugar: Salón de grados del Departamental I. Campus de Fuenlabrada.

TÍTULO: Raise Your Voice at a Proper Pace to Synchronize and
 Demodulate with an Aggregate Template

 PONENTE: Georgios B. Giannakis
            Department of Electrical & Computer Engineering
            University of Minnesota

 ABSTRACT:
Timing synchronization is known to affect critically the performance of all coherent communication systems. Its effects are particularly pronounced in contemporary wireless technologies including ultra-wideband radios and wireless sensor networks, where cooperative or ad hoc access is challenged by arbitrary asynchronism, intersymbol interference, receiver noise, as well as inter- and intra-piconet interference arising from concurrently communicating nodes. For universal applicability to all these scenarios, we present in this talk training-based and blind synchronization algorithms along with corresponding demodulation schemes. These rely on the idea of periodically raising the transmit-power (`voice') of each piconet's synchronizing node with
 a period (`pace') characteristic of each piconet. The novel demodulatror correlates with what we term synchronized aggregate template (SAT) which offers provable advantages over the popular RAKE at remarkably low complexity. Analytical and simulated performance is carried in an ultra-wideband wireless personal area network (WPAN) setup.

 BIO:
 G. B. Giannakis received his B.Sc. in 1981 from the Ntl. Tech. Univ. of Athens, Greece and his M.Sc. and Ph.D. in Electrical Engineering in 1983 and 1986 from the Univ. of Southern California. Since 1999 he has been a professor with the Department of Electrical and Computer Engineering at the University of Minnesota, where he now holds an Endowed ADC Chair in Wireless Telecommunications. His general interests span the areas of communications and signal processing, estimation and detection theory -- subjects on which he has published more than 250 journal papers, 400 conference papers, and two edited books. Current research focuses on complex-field and space-time coding, multicarrier, ultra-wideband wireless communication systems, cross-layer designs and distributed sensor networks. He is the (co-)recipient of six best paper awards from the IEEE Signal Processing (SP) and Communications Societies (1992, 1998, 2000, 2001, 2003, 2004) and also received the SP Society's Technical Achievement Award in 2000 as well as the EURASIP Technical Achievement Award in 2005. He is an IEEE Fellow since 1997 and has served the IEEE in various editorial and organizational posts.