Postdoctoral position at LNE-SYRTE
Time Metrology Group

Study and development of a Software Defined Radio (SDR) transmitter and receiver for two-way satellite time and frequency transfer (TWSTFT) applications

Comparisons of remote atomic clocks (microwave and optical) are currently limited by the noise of satellite links, which are either based on signals from radio navigation satellite systems (GNSS, Global Navigation Satellite System), or the two-way technique through telecommunication satellites (TWSTFT, Two-Way Satellite Time and Frequency Transfer). Their best operational performances reached today are of the order of 1×10^{-15} at 1 d in terms of relative frequency stability, while the atomic frequency standards in laboratories are accurate today at some 10^{-16} in fractional frequency uncertainty and in the near future at some 10^{-17}. In collaboration with other European laboratories, the Designated Institute LNE-SYRTE of Observatoire de Paris, one of the leading laboratories in this field, has recently demonstrated that it is possible to gain one order of magnitude on the stability of the satellite microwave link using a broadband TWSTFT technique. The proposed work deals with the study and development of an SDR transmitting and receiving platform to be implemented into a VSAT system: generation, analysis and processing of signals modulated by Pseudo-Random Noise (PRN) codes and carried on satellite microwave frequencies; definition of a suitable combination of transmitted and received carrier and code phase signals; software solution for recovering the phase of the RF carrier.

Start date: in the first quarter 2017

Field: digital signal processing DSP, transmitting and receiving by SDR solution, pseudo-random noise codes.

Profile: the candidate must have completed a PhD in telecommunications and signal processing. Skills in digital communications and SDR are required. Very well knowledge of software programming tools as well as a good knowledge of English are absolutely necessary.

Contact: send a motivation letter, a CV with list of publications, and the name and contact information of two references, to

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