Scientific Report

First name / Family name
Pierluigi / Salvo Rossi
Nationality
Italian
Name of the Host Organisation
NTNU
First Name / family name of the Scientific Coordinator
Torbjörn / Ekman
Period of the fellowship
06/03/2013 to 05/03/2014
I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

The research activities have been related to two areas:

- wireless sensor networks in radio and underwater-acoustic channels;
- multiple access over satellite link.

In the first case, the activity has focused on the design and analysis data fusion techniques for sensor networks with event-detection tasks. Special emphasis has been given to low-complexity solutions. Numerical simulations based stochastic models for underwater environments have been performed. The impact on system performance of different parameters, such as number and quality of the sensors as well as the characteristics of the data fusion center, has been evaluated.

Also, theoretical analysis with flexible stochastic models capable to account for real-world channels has been investigated. Finally, techniques from the massive-MIMO technology have been adapted to the scenario.

In the second case, the activity has focused on the performance analysis, in terms of information capacity, of mobile terminals with random multiple access on satellite channels. The impact on system performance of different reception techniques at satellite location, focusing on multi-user interference cancellation and iterative techniques. Both activities have been performed within the CAMOS project.

II – PUBLICATION(S) DURING YOUR FELLOWSHIP

Published:


Under Review:


In Preparation:

III – ATTENDED SEMINARS, WORKSHOPS, CONFERENCES

As a listener:
- Various seminars at the Department of Electronics and Telecommunications, NTNU, Trondheim, Norway.

As a speaker:
- One seminar at the Department of Electronics and Telecommunications, NTNU, Trondheim, Norway.
- One seminar at the Excellence Center for Wireless Sensor Networks (WISENET), Uppsala, Sweden.

IV – RESEARCH EXCHANGE PROGRAMME (REP)
One week visit (December 2013) to the Excellence Center for Wireless Sensor Networks (WISENET), Uppsala, Sweden.