



ERCIM "ALAIN BENSOUSSAN"
FELLOWSHIP PROGRAMME



Scientific Report

First name / Family name

Golsa Ghiaasi Hafezi

Nationality

Iran

Name of the *Host Organisation*

NTNU

First Name / family name
of the *Scientific Coordinator*

Torbjörn Ekman

Period of the fellowship

01/11/2016 to 30/10/2017

I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

Since the construction of the lab had been facing significant delays during the majority of the time while I was on the fellowship, my efforts were spent on setting up the Massive MIMO testbed along with the antenna arrays, and user terminals, and codes for data acquisition needed for the tests. The work included test and validation of the testbed architecture, proof of along with measurement campaign planning. This was not in the scope of the fellowship, but it was vital to get any research work done.

I also attended

Finally, a measurement campaign was carried out in December 2017, with 64 node antenna array system, and 8 UE terminals. The data analysis has been carried out since then, with first set of results on channel hardening in large antenna systems being ready in March 2018.

II – PUBLICATION(S) DURING YOUR FELLOWSHIP

1. Thomas Blazek, et. al, `Vehicular channel models: A system level performance analysis of tapped delay line models, ` 15th International Conference on ITS Telecom, May 2017. (related to an earlier work and not related to fellowship)

2. Thomas Blazek, Golsa Ghiaasi, Christian Backfrieder³, Gerald Ostermayer³, Christoph F. Mecklenbräuer, 'IEEE 802.11p Performance for Vehicle-to-Anything Connectivity in Urban Interference Channels,' accepted, EuCAP 2018. . (related to an earlier work and not related to fellowship)
3. Golsa Ghiaasi, Thomas Blazek, Mehdi Ashury, Rute Santos and Christoph F. Mecklenbräuer` Real-Time Emulation of Nonstationary Channels in Safety-relevant Vehicular Scenarios,' Journal of Wireless Communications and Mobile Computing, accepted for publication in March 2018. . (related to an earlier work and not related to fellowship)

III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

1. IRACON 4th technical meeting and tutorial on Massive MIMO, Lund University, May 2017, Funded by NTNU ReRaNP project.
2. ESoA/COST-IRACON Joint Training School on Large Scale Radio Propagation, June 2017, Louvain-La_Neuve, Belgium, Funded by NTNU ReRaNP project
3. Training workshop on National Instruments MIMO Framework Application, October 2017, Funded by NTNU ReRaNP project.

IV – RESEARCH EXCHANGE PROGRAMME (REP)

In October 2017, I spent 9 days visiting CNR IEIIT at Bologna, Italy. During the visit, we engaged in exchange of ideas on the areas of telecommunication in vehicular systems (IEEE802.11p and LTE-V2V) as well as large scale radio systems using measured data and modelling the behaviour of the parameters of the physical layer as well as by looking at performance metrics such as coverage and capacity for various systems. Some ideas for collaboration was put forward during the visit.