

# **Simulation and Emulation tools for the analysis of bandwidth efficient transmission techniques in NR-NTN**

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The scholarship activities will focus on the analysis and utilization on dedicated computation platforms of the existing open source emulation and, at a lower priority, simulation tools for the evaluation of the 5G air interface and its adaptations to Non-Terrestrial networks. Specific attention will be placed to the OpenAir Interface project (<https://openairinterface.org/>) and to the GnuRadio existing implementations (<https://www.gnuradio.org/>).

The objective of the activity is to build significant expertise on the use of such tools that are being adopted by research and development centers at both industrial and academic level for a fast deployment of 5G systems based on software define radio and virtualization.

Through the proposed activity the scholarship recipient will develop a deep understanding of the 5G protocol stack architecture, of the non-terrestrial networks peculiarities, and of the concepts of virtualization, softwarization, and disaggregation of future generation networks.