

M.Sc. Thesis: NGSO Satellite Network Interference

Background

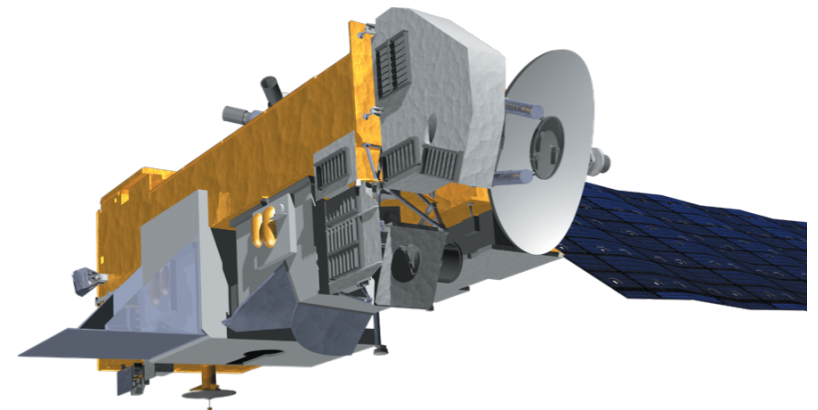
The launch of private satellite networks is becoming significantly cheaper due to new private launching companies such as Space-X. This means that satellite networks on Non-Geosynchronous Satellite Orbits (NGSO) are likely to become more common. However, this comes with the danger that satellites with hierarchical orbits can start to have radio interference between them, and particularly uplink (from earth to satellite) links need to be considered carefully.

Tasks

In this thesis you will first familiarize yourself with the satellite orbit simulator and then design few realistic looking NGSO satellite networks that corresponds to the planned LEO/MEO-satellite systems. You will then develop a simplified simulation model for satellite based receiver and earth bound uplink transmitters that operate on mmW-frequencies. You will then use orbital information and simplified link simulations to estimate risk for interference between different satellite networks, and possibly propose also mitigating methods.

Other Information

This thesis is a great opportunity to combine interest on satellite networks and mmW-communications links. The research work itself has a strong link to the future commercial space-born system and their possible regulation. The interest on programming simulator environment(s) is useful, and understanding of basics of propagation models is helpful but not mandatory.



Contact

Andra Voicu, M.Sc.

Institute for Networked Systems
0241 80-209 22

avo@inets.rwth-aachen.de

Dr Ljiljana Simić

Institute for Networked Systems
0241 80-209 25

lsi@inets.rwth-aachen.de