



DOCOMO Euro-Labs

Placement Offer for Internship

Synchronization over Optical Networks for Multi-Cell MIMO

Synchronization is a very important issue in cellular networks. Base stations need a common reference for frequency and time, so that they transmit in the correct frequency band and possibly cooperate to transmit simultaneously to improve the throughput of cell edge users.

For improved coordination among base stations, it is envisioned that in densely populated areas, a central node is responsible for coordinating the transmissions among multiple base stations. Synchronization plays a crucial part in this scenario, because the achieved accuracy affects the quality of possible coordination schemes and their applicability.

The goals of the internship are related to this scenario and are as follows:

- Investigate the impact of synchronization over digital optical networks for multi-cell MIMO schemes
- Define pros and cons of the optical network architecture for synchronization
- Examine the impact of clock quality on the synchronization accuracy
- Develop a simulation tool that models realistic synchronization errors

Qualifications:

- Studying towards a Master degree in Electrical Engineering or equivalent degree.
- Ability and motivation to perform research independently
- Strong analytical skills and some knowledge on optical networks would be highly appreciated
- Solid programming skills in MATLAB and C/C++
- Excellent English language skills orally and in writing

The placement will last 5 to 6 months and will take place in Munich (Germany) within DOCOMO Euro-Labs. If you are interested, please send a CV and a cover letter to info@docomolab-euro.com.

Keywords: optical network, synchronization.