PhD Project(s) for inclusion on the UCD-Brazil Science Without Borders Website.

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Project title
Enable Mobile and Multi-homed Femtocells

Priority Research area
Computing and Information technology

Femtocells are currently being deployed by a large number of mobile telecom operators in order to improve network coverage and increase network capacity. These deployments are primarily limited to customer’s homes and connect to the operator’s core network via fixed broadband links. However, as the popularity of femtocells increases, operators will seek new use cases in which femtocells can be used to further enhance user experience while minimising network load.

One such use case is that of mobile femtocells. These are high capacity, potentially multi-radio capable femtocells, which could be deployed in public transport vehicles such as buses, trams and trains. Using femtocells in this context has a number of potential advantages such as, minimising the amount of signaling to the core network by aggregating the signaling from connected user devices, the ability to implement soft handover and load balancing mechanisms using multiple radios located in the mobile femtocell.
This work would focus on developing new use cases and mechanisms to enhance and support the realization of multi-radio femtocells potentially using heterogeneous radio access networks. This would include investigating mechanisms to improve handover performance, identifying problems with existing mechanisms and developing novel soft handover and load balancing solutions and policies.