Proposition de recherche doctorale

**Novel Feedback allocation and design strategies in distributed cooperative wireless network**

**Mots clés :**
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- Unité de recherche : Laboratoire de recherche d'EURECOM
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- Domaine scientifique principal: Divers

**Résumé du projet de recherche (Langue 1)**

The purpose of this thesis is to propose methods of quasi-distributed multicellular coordination based on the minimization of information exchange on the physical channels of the users as well as on the backhaul. In current standards, the feedback mechanism works with the UE sending its CSI to the serving eNB then assumes a sharing mechanism between cooperating eNBs. This way of designing feedback is convenient (fits to current LTE) but fails to scale with the density and size of the network because sharing mechanisms on the backhaul introduce latency which makes feedback much less useful. This approach also fails to exploit the ”broadcast nature” of the wireless channel, which is a property which applies also to the feedback channels. Thus we raise the question: How should one re-design feedback mechanisms such that this property is exploited? The objectives are to: 1. Propose a new philosophy of feedback and propose a design exploiting the nature of wireless channels broadcast. 2. Propose mixed strategies combining the distributed feedback mechanism with the backhaul using shared methods. 3. Find a compromise between the antenna processing techniques and scheduling based on the reduction of interference.