**Satellite communications and cellular systems with caches**

**Mots clés:** Array

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- **Domaine scientifique principal:** Sciences de l'information et de la communication

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

Hui and myself have devised an ambitious plan that meets the expectations of the student, as well as of the funding ERC project DUALITY. Crucial to the development of the envisioned research will be a deeper understanding of caching, and its connections with satellite communications and larger cellular systems. Emphasis on these, and their intersections, is motivated by the fact that

a) Caching is a powerful tool that can help us alleviate previously intractable communication bottlenecks,  b) caching is currently treated on very small sanitized (classical) networks, with very little being known about its application in larger more realistic systems,  c) the problems of cellular nets and satellite comm can immensely gain from caching. The thesis will benefit from several tutorials that will be presented to Hui. In the end, the theoretical work will be combined with a selection and design of practical caching schemes that can be implemented in the context of satellite communications and large cellular networks.