

SOURCE: Communication Engineering Department, University of Cantabria. Santander,
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MARC: Multiple Access Radio Controller

A Convex Optimization Approach to 5G Multi-connectivity

Network densification over space and spectrum is expected to be key to enable the requirements of next generation cellular systems. The pitfall is that radio resource allocation becomes substantially more complex. In this paper we propose a cost-efficient scheduler for OFDM-based heterogeneous systems with multi-connectivity support. Our scheduler makes optimal discrete control actions by solving a sequence of convex problems with no prior knowledge of the users traffic distribution. Differently to prior work, the flexibility of our approach to construct scheduling policies allows us to account for practical constraints of real systems delays when turning on/off radio units, discrete sets of available modulations, etc. while supporting a variety of utility-based objectives.

Luis Diez, Andres Garcia-Saavedra, Victor Valls, Xi Li, Xavier Costa-Perez, Ramón Agüero
University of Cantabria
Edificio I+D+i de Ingeniería de Telecomunicaciones
Plaza de la Ciencia, s/n
39005, Santander
Spain
Phone: + 34-942 20 09 19 (ext. 504)
Fax: + 34-942 20 14 188
Email: ldiez@tlmat.unican.es, victor.valls@ted.ie, andres.garcia.saavedra@neclab.eu, xi.li@neclab.eu,
xavier.costa@neclab.eu, ramon@tlmat.unican.es