

## Effective Capacity of NOMA and a Suboptimal Power Control Policy With Delay QoS

### Abstract:

In order to apply downlink nonorthogonal multiple access (NOMA) to delay-sensitive transmissions, we consider NOMA with delay quality of service (QoS) constraints and effective capacity with power control when the channel state information is available in this paper. As the power control problem to maximize the sum effective capacity with delay QoS constraints is not a convex problem, we propose a suboptimal approach based on the partial effective capacity. The resulting power control policy can be seen as a generalization of a well-known approach, which is the truncated channel inversion power control (TCIPC) policy, to NOMA. We can further optimize the NOMA-TCIPC policy with QoS constraints and confirm that the resulting policy can guarantee delay QoS from simulation results.