

# Interference exploitation based hybrid precoding in massive MIMO systems



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

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## TOPIC

Massive MIMO is considered as one of the key pillars of the upcoming 5G networks. One of the main challenges associated with the massive MIMO technology is the need of large number of high-cost, power hungry, RF chains. To overcome this challenge, a smart hybrid analog-digital precoding technique is proposed in the literature.

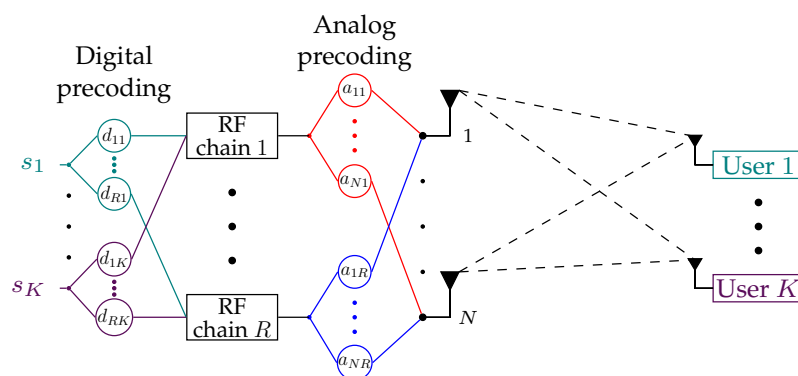


Abbildung 1: Hybrid precoding architecture.

The tasks involved in this topic are

- Design power efficient hybrid precoding techniques, e.g., based on interference exploitation techniques
- Low complexity algorithms to compute the precoders
- Robust precoding techniques to make precoders suitable in the scenarios where the imperfect hardware, incomplete channel knowledge, etc.
- Hybrid precoding with 1-bit DACs/ADCs
- Block-level analog precoding