

# IMPLEMENTATION OF COOPERATIVE AND NON-COOPERATIVE NOMA IN 5G

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## Abstract

Massive MIMO (multiple-input multiple-output) antenna technology can provide significant performance improvement for cellular systems in terms of both throughput and energy efficiency. It is widely recognized that inter-user interference can be eliminated with a large number of antennas because of the asymptotical orthogonality among users when linear MF (Matched Filter) downlink precoding is used in the eNodeB. Due to the complexity and deployment consideration in practical scenarios at individual eNodeBs, cooperative massive MIMO [CM-MIMO] where multiple base stations cooperate together and form a distributed antenna array to serve multiple users simultaneously is an attractive alternative

## Existing Method

- MISO-OFDMA
- LTE-FDD
- MISO

## Drawbacks:-

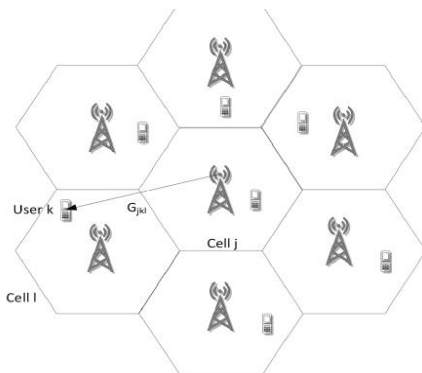
- High complexity
- Possible for limited antennas.

- Not implemented in cooperative massive mimo
- Inter cell interference occurs

Proposed Method:-

- Non-Cooperative Massive MIMO
- Cooperative Massive MIMO

Block Diagram



Methodologies:-

- MIMO
- Non-Cooperative Massive MIMO
- Cooperative Massive MIMO

- OFDMA

#### Advantages:-

- Implemented in downlink
- Increased system performance
- Throughput is increased

#### Applications:-

- LTE
- 4G- MIMO

#### Expected Output :

15,25,50 Transmit antennas with relay and without relay u can also go for without relay and with 3 relays

#### Software Requirement:-

- MATLAB 10 or above versions

#### References:-

[1] 3GPP TS 36.211 V8.2.0, Rel-8 Evolved universal terrestrial radio access (E-UTRA); physical channels and modulation, Mar. 2010.

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- [3] S. Chen and J. Zhao, "The requirements, challenges, and technologies for 5G of terrestrial mobile telecommunication," *IEEE Commun. Mag.*, vol. 52, pp. 36–43, May 2014.
- [4] T. Q. S. Quek, H. Shin, and M. Z. Win, "Robust wireless relay networks: Slow power allocation with guaranteed QoS," *IEEE J. Select. Topics Signal Process.*, vol. 1, pp. 700–713, Dec. 2007.
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