5G mmWave

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Myth and Reality

Good News

- Excellent progress on standardization of channel model (6GHz-100GHz)
- 3GPP standardization for 5G-NR is on-track and accelerating (2017)
- Global momentum on the regulatory work to release mmWave spectrum for 5G
- Fiber-like fixed-access deployment for 5G mmWave business cases is viable now
- Solid field trials and test mmWave usecases

Challenges

- Wide area coverage (in particular for NLOS for a few kilometers)
- Mature ecosystem to lower the cost
- Smartphone application

Research Directions

- **Communications and Radar Dual-Mode Applications**
  - Precision measurement of object **locations**
  - Precision measurement of object **movement**
  - Precision measurement for real-time ray-tracing of channel
- **Network-Based Gyroscope for VR Terminals**
  - mmWave array to measure the motions of VR terminal
    - for network-based rendering computing
- **Asymmetrical Bands Beam-forming**
  - FDD down-link up-link bands bean alignment and tracking
  - Control plane assisted beam-forming

THANK YOU

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