“the future is so bright ... I have to wear shades?”

Moving to Multi-Networks, not just Heterogeneous Networks

New Architectures (moving from the PHY to Systems of Systems focus)

QoS + Capacity + Access = Utility

Measurements for reactive and Models for predictive control

Automated “enforcement” / interference control to enable operations closer to the physical limits
Directions in Propagation Understanding

- Statistical Models
- Stochastic Properties
- Physics Models
- In-situ Models
- Measurement-based Models
- Direct Data Usage
- Measurements

Environment
The “Big Data” Answer for Measurement-based Modeling?

- Sensors Infrastructure Data
- Physics Understanding
- Big Data Processing
- Results
- Why?

features
New Capabilities ✫
New Challenges ✫
New Opportunities

Sensor
HW Calibration
Large Corpus of Devices
Geo-Data
Processing

Multi-Antennas
Directional Transmissions
Distributed Transmitters

Macro-Spatial Characteristics
Micro-Spatial Characteristics
Temporal Characteristics

New Models “in situ”