

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Signal Processing for mm Wave communication for 5G and beyond

Subject Co-ordinator - Prof. Amit Kumar Dutta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tx- Rx Structure
Lecture 2 - Rx -Structure
Lecture 3 - Fundamental of Ray-Tracing model
Lecture 4 - General channel model - Part I
Lecture 5 - General channel model - Part I (Continued...)
Lecture 6 - General channel model - Part I (Continued...)
Lecture 7 - General channel model - Part II
Lecture 8 - Wireless channel-A ray tracing model - Part II
Lecture 9 - Wireless channel-A ray tracing model - Part II (Continued...)
Lecture 10 - Wireless channel-A ray tracing model - Part II (Continued...)
Lecture 11 - Wireless channel-A ray tracing model - Part II (Continued...)
Lecture 12 - RMS Delay spread and Doppler Effect on channel
Lecture 13 - Time Varing Model
Lecture 14 - Doppler Impact on coherence BW
Lecture 15 - Introduction to time series
Lecture 16 - AR,ARMA,MA process
Lecture 17 - Doppler with AR process model
Lecture 18 - Coherence time and parameter summery
Lecture 19 - Basic ISI channel
Lecture 20 - Channel estimation and Equalizer
Lecture 21 - precoder and MIMO
Lecture 22 - precoder and MIMO (Continued...)
Lecture 23 - Basics of mmwave spectrum
Lecture 24 - Angle of arrival and angle of departure
Lecture 25 - 3D concepts, AoA,AoD
Lecture 26 - mmWave channel model with RX beaming
Lecture 27 - mmWave channel model with RX beaming (Continued...)
Lecture 28 - mmWave channel model with RX beaming (Continued...)
Lecture 29 - mmWave channel model with RX beaming (Continued...)

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- Lecture 30 - mmwave channel model (Continued...)
- Lecture 31 - mmWave channel model (Continued...) -Tx side multiple antenna
- Lecture 32 - Basics of Beamforming
- Lecture 33 - Single Antenna beamforming
- Lecture 34 - Concept of antenna many fold vector
- Lecture 35 - 3D Concept of antenna many fold vector
- Lecture 36 - Different Geometry of antenna from electrical point of view
- Lecture 37 - Basics of Beamforming pattern - Part I
- Lecture 38 - Basics of Beamforming pattern - Part II
- Lecture 39 - SISO Beamforming
- Lecture 40 - MIMO Beamforming
- Lecture 41 - Structural implementation of MIMO Beamforming
- Lecture 42 - Different Level of Beamforming
- Lecture 43 - MIMO Beamforming in Transmitter side
- Lecture 44 - MIMO Beamforming in Receiver side - Part I
- Lecture 45 - MIMO Beamforming in Receiver side - Part II
- Lecture 46 - Mathematical description of MIMO Beamforming (Continued...)
- Lecture 47 - Equalizer based detector
- Lecture 48 - Parameter to be designed in MIMO Beamforming
- Lecture 49 - OFDM Data Model
- Lecture 50 - OFDM Data model (Continued...)
- Lecture 51 - General OFDM
- Lecture 52 - OFDM spectrum and CFO
- Lecture 53 - MIMO OFDM structure
- Lecture 54 - MIMO OFDM decode and beamforming
- Lecture 55 - Design parameter estimation - Part 1
- Lecture 56 - Design parameter estimation - Part 2
- Lecture 57 - Design parameter estimation - Part 3
- Lecture 58 - Design parameter estimation - Part 4
- Lecture 59 - Design parameter estimation - Part 5
- Lecture 60 - MU System
- Lecture 61 - CFO and other impairment and their effects
- Lecture 62 - Multi User Hybrid beam and impairment and analysis - Part 3
- Lecture 63 - Multi User Hybrid beam and Impairment and analysis - Part 4
- Lecture 64 - Multi User Hybrid beam and Impairment and analysis - Part 5