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High Performance Cloud Ray-Tracing Simulator and Its Application to High Speed Train Communications

Ray tracing simulation has played an important role in communication channel modeling. However, accurate simulation under complex scenario greatly challenge the computational capabilities of personal computer. In this presentation, a high performance computing (HPC) based cloud ray-tracing simulator (RT) is introduced. The application of the RT to 3GPP high speed train (HST) scenarios is demonstrated and the propagation channel is studied at 30 GHz and 3.5 GHz. Urban, cutting and viaduct scenarios are modeled, suggestions are provided to guide high-data-rate HST communication system design. The results indicate that jointly using RT and HPC have been illustrated to be an efficient approach for high accurate simulation for HST channel.

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