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Wireless data transfer at 60 GHz

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The data transfer rate from highly granular tracking detectors are today limited by the available bandwidth in the readout links. This prevents the detectors from being used for fast triggering. To get the tracker to contribute to a fast trigger decision the data rate from the tracker has to be increased or the quantity of data to decrease. A higher data transfer rate can be achieved by increasing the the number of data links, the data transfer speed in the data link or both. The data quantity can be decreased by introducing in-detector intelligence.
In addition to the limited data transfer capacity, the semiconductor tracker geometry is not not optimal for triggering purposes. The trackers are built of independent layers that are not grouped in topological structures. The logical grouping is following the most convenient path of service routing rather than phi-eta that is preferred by the trigger.
Wireless data transfer may be a suitable method of solving many of the limitations for using the tracker for fast triggers. The WLAN market will in the future shift to the 60 GHz band to reach higher data transfer rates allowing for wireless transfer of HD video signals. The high speed links are low mass and low power for short distance data transfer. Further more the antennas can easily be integrated as surface integrated wave guides on present hybrid designs.
In this contribution we will present how 60 GHz wireless data transfer can be used in next generation trackers.

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