**On Performance Metrics for MIMO Antennas**

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Multiple-input multiple-output (MIMO) technology can ideally enable data rate to scale linearly with the number of antennas used. However, in practice the data rate depends on the antenna design and the propagation channel, particularly for small terminals.

In this course, we give an overview of performance metrics suitable for characterizing MIMO antennas, with emphasis on the latest developments. The main topics are:

• Motivation for relevant performance metrics as well as their correct usage;

• Performance metrics that characterizes MIMO performance at the antenna level;

• A new method to accurately obtain correlation coefficient of lossy MIMO antennas;

• System level metrics of diversity gain and capacity. The new metric of multiplexing efficiency as derived from capacity will be discussed in detail;

• Outlook on opportunities for future work in the area.

The short course is designed for PhD students, researchers and engineers involved in multi-antenna design. The aim is to provide both the necessary tools to quantify MIMO antenna performance as well as the knowledge to effectively apply these tools.