Title:
Simulation of geometrical one-ring scattering channel model

Supervisor:
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Project Description:
The goal of emerging wireless technologies is to “make things work” in real-world wireless channels. Wireless channel modelling, therefore, plays an important role in the design, testing and evaluation of wireless technologies. This project will focus on geometrical one-ring scattering channel model, which characterizes the wireless channel by laws of wave propagation applied to specific transmitter, receiver and scatterer locations. The term scatterer here refers to any physical object interacting with the signal waves in the sense of causing signal propagation. The aim of the project is to implement a one-ring scattering channel model in Matlab and to investigate the properties of the channel model by varying the model parameters, e.g. the number of scatterers.

Assessment:
The project will require a short literature review, as well as some background reading to become familiar with Matlab and with the channel modelling technique to be used. The student will write the Matlab code to implement the one-ring channel model, followed by investigation of the properties of the simulated channel model.

The project will include the following components, with the (approximate!) associated time commitments:

- Literature survey (10 hours)
- Familiarisation with Matlab (10 hours)
- Background reading on channel model properties (20 hours)
- Matlab simulations and analysis (20 hours)
- Preparation of report and presentation (20 hours)

Proposed project assessment:
- Presentation (15%)
- Matlab Coding (15%)
- Report (70%)