

BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

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Seminarraum 05.002, Spiegelgasse 5

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Optimizing strategies for releasing sterile mosquitoes

ABSTRACT

The sterile mosquito technique, a method of biological control for a mosquito population, has attracted a lot of attention lately due to the progress of transgenic strategies. A fundamental understanding of the population dynamics of the targeted mosquito species and the impact of the intervention is needed in order to plan realistic trials and to evaluate their outcome. Although a lot of research has already been conducted, there are not many results available on the optimal strategy to release sterile males.

In this talk we present a simple PDE model for the description of the dynamics of an *Aedes aegypti* mosquito population, the primary vector for Dengue, Chikungunya and Zika, under a sterile mosquito release on an island. We then apply optimal control theory to the presented model to optimize the release over space and time.