

OPTIMAL CONTROL PROBLEM OF INFLUENZA MODELS WITH INEQUALITY CONSTRAINTS

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Recently, A control theoretic approach is applied to minimize the number of infective individuals as well as the costs associated with vaccination and treatment [1, 2]. In this talk, we consider various optimal control problems to derive an efficient vaccination strategy for influenza outbreaks. First, an optimal control problem of a SEIAR model is considered with control strategies include vaccination, antiviral treatment, and social distancing such as school closures. We also investigate an optimal control problem of a SIR reaction-diffusion system with inequality constraints. This control problem reflect realistic restrictions associated with limited total vaccination coverage and the maximum daily vaccine administration. The results of numerical simulations show that the optimal vaccine strategy varies regionally according to the spreading rate of the disease.

References

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