



# Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg  
Lehrstuhl für Wissenschaftliches Rechnen IX

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## Optimal control of the wine fermentation process

The process of wine fermentation consist of many dynamics of biological, chemical and physical nature. Modelling and simulating the whole process is therefore a very challenging task. As a starting point we investigate an ODE model for the fermentation process and extend it by diffusion. The resulting system of Reaction-Diffusion equations is of quasilinear parabolic type. The choice of the notion of solutions and the function space in which to search for them is crucial in order to prove existence of a minimizer of the optimal control problem subject to these equations. After deriving the optimality system it is discretized with the IMEX splitting approach. As an optimization scheme we choose BFGS which is a quasi-Newton method. Numerical examples complete the presentation.

Ort: Raum 30.03.007 (3. Stock) (Mathegeb. 30 West)    Zeit: Dienstag, 22.07.2014, 11.00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.

*gez. Prof. Dr. Alfio Borzi*