Meeting: 1003, Atlanta, Georgia, SS 28A, AMS-SIAM Special Session on Reaction Diffusion Equations and Applications, I

1003-49-1587 **Miguel A. Dumett*** (dumett@usc.edu), Kaprielian Hall, Room 108, 3620 Vermont Avenue, Los Angeles, CA 90089-2532, and **Gary Rosen** and **Robert Swift**. *Estimation of blood alcohol concentration using skin vapor alcohol measurements: a nonlinear model.* Preliminary report.

We describe the transport of alcohol through the skin using a nonlinear diffusion equation. We use a nonlinear PKPB model to describe the transport of alcohol throughout the body. We use data obtained from a transdermal skin sensor to estimate blood alcohol concentration using this body-skin model. The parameters of the model are adjusted to obtain optimal least squares fit with data provided by a breathalyzer. (Received October 05, 2004)