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Michael S. Kinnally* (mkinnall@math.ucsd.edu), 9388 Redwood Dr., Apt. A, La Jolla, CA 92037, and **Ruth J. Williams**. *Stationary Solutions for One-Dimensional Stochastic Delay Differential Equations with Reflection.*

Deterministic dynamic models with delayed feedback and state constraints arise in the modeling of Internet rate control and of biochemical reactions involving transcription and translation. Much of the analysis of such deterministic models has focussed on stability analysis of equilibrium points. There is interest in understanding what effect noise has on the behavior of such systems. Here we consider a one dimensional stochastic delay differential equation with reflection as a simple prototype for a noisy analogue of a deterministic system with delayed feedback and state constraints. We obtain sufficient conditions for this system to have a unique stationary solution. We conclude with an example from Internet congestion control. (Received September 03, 2008)