The SIGEST paper in this issue, “Viral Blips May Not Need a Trigger: How Transient Viremia Can Arise in Deterministic In-Host Models,” by Wenjing Zhang, Lindi M. Wahl, and Pei Yu, is from the SIAM Journal on Applied Mathematics. The authors have expanded the introduction to explain the details of the problem and survey the prior work on this subject.

In this paper the authors analyze dynamic models of recurrent infections in individuals (the hosts in the title). These viral infections, HIV being a well-known example, have long periods of low viral activity punctuated by episodes of high viral reproduction. Previous models of the dynamics of these viral blips used either stochastic components or forcing terms as the triggers to simulate the phenomenon.

The new models in the paper require neither stochastic features nor forcing terms and generate the viral blips by dynamic bifurcations. Such models had been investigated by others who simulated the blips numerically, but, until this paper, there were no analytical studies that supported the computational observations. While the analysis is very technical, the paper also has several simple examples. Any reader will enjoy playing with those.

The Editors