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*Sampled-Data Stabilization of a Beam Equation.*

We consider the problem of stabilizing an infinite dimensional system with sampled-data feedback. Specifically, suppose a continuous-time feedback stabilizes a control system. Given a small enough sampling time, does a corresponding sample and hold version of this feedback stabilize the system as well? While this question has been studied in some generality, we examine one control system—the beam equation with internal damping—for which the general results do not apply. Despite this system’s unique properties, we find that the sample and hold feedback still gives stability. (Undergraduate research carried out at the University of Nebraska-Lincoln.) (Received August 30, 2005)