TUFAIL MALIK, Arizona State University, PO Box 871804, Tempe, AZ 85287-1804, USA
A Resource-Based Model of Microbial Quiescence

To analyze the ecological features of microbial quiescence, a model is proposed that involves "wake-up" rate and "sleep" rate at which the population transitions from a quiescent to an active state and back, respectively. These rates depend continuously on the resources and turn on and off at resource thresholds which may not coincide. The usual dichotomy is observed: the population is washed out under environmental stress and a single "survival" steady state exists otherwise. Proportional nutrient enrichment is used to explore analytically as well as numerically the nature of the steady state which bifurcates from the washout state.

This is joint work with Hal Smith.