1116-VC-1772 **Zev Woodstock*** (woodstzc@dukes.jmu.edu), 252 MLK, Jr. Way, Harrisonburg, VA 22801, and **Bryan Félix** (bryanfelixg@gmail.com) and **Anne Shiu** (annejls@math.tamu.edu). *Analyzing Multistationarity in Chemical Reaction Networks using the Determinant Optimization Method.*

Multistationary chemical reaction networks are of interest to scientists and mathematicians alike. While some criteria for multistationarity exist, obtaining explicit reaction rates and steady states that exhibit multistationarity for a given network—in order to check nondegeneracy or determine stability of the steady states, for instance—is nontrivial. Nonetheless, we accomplish this task for a certain family of sequestration networks. Additionally, our results allow us to prove the existence of nondegenerate steady states for some of these sequestration networks, thereby resolving a subcase of a conjecture of Joshi and Shiu. Our work relies on the determinant optimization method, developed by Craciun and Feinberg, for asserting that certain networks are multistationary. More precisely, we implement the construction of reaction rates and multiple steady states which appears in the proofs that underlie their method. Furthermore, we describe in detail the steps of this construction so that other researchers can more easily obtain, as we did, multistationary rates and steady states. http://arxiv.org/abs/1508.07522 (Received September 21, 2015)