1077-92-36 **Anne Shiu** and **Bernd Sturmfels*** (bernd@math.berkeley.edu), Department of Mathematics, University of California, Berkeley, CA 94720. *Siphons in Chemical Reaction Networks.*

Siphons in a chemical reaction system are subsets of the species that have the potential of being absent in a steady state. We present a characterization of minimal siphons in terms of primary decomposition of binomial ideals, we explore the underlying geometry, and we demonstrate the effective computation of siphons using computer algebra software. This enables us to determine whether given initial concentrations allow for various boundary steady states. (Received June 21, 2011)