1126-08-375 **Hubie Chen** and **Peter Mayr*** (peter.mayr@colorado.edu), University of Colorado, Boulder, CO. *Quantified constraint satisfaction on monoids.*

The quantified constraint satisfaction problem QCSP for a fixed finite relational structure has as input a first order sentence over this structure built from atoms, conjunction, and both existential and universal quantifiers. The problem is then to decide whether the sentence is true. This is well-known to be always in PSPACE. We aim to classify structures by the computational complexity of their QCSP.

Using an established algebraic viewpoint we can replace a relational structure by its polymorphism algebra and ask about the complexity of the QCSP for this algebra instead. We show that the QCSP of any finite monoid is either in P or NP-complete. (Received January 17, 2017)