

## A New Matroid Lift Construction

Zach Walsh\*, Daniel Bernstein

Given a matroid  $M$  and a matroid  $N$  on the circuits of  $M$ , we show how to construct a rank- $r(N)$  lift of  $M$ . Can this construction be used to give a new description of the  $(k, \ell)$ -sparsity matroid or the generic  $d$ -dimensional rigidity matroid of a graph? This is ongoing work with Daniel Bernstein.

Keywords: matroid, lift, construction, graph