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**Alex Fink\*** ([arfink@ncsu.edu](mailto:arfink@ncsu.edu)) and **Luca Moci**. *Matroids over rings*.

We introduce the notion of a matroid over an arbitrary commutative ring. When this ring is a field, we recover matroids; when a DVR, we get essentially tropical Plücker vectors i.e. valuated matroids; and when the ring is  $\mathbb{Z}$  we get arithmetic matroids. More generally, when the ring is Dedekind we can define all of the usual matroid properties and operations, and can compute the universal deletion-contraction invariant. (Received August 22, 2012)