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Lawrence, KS 66045, and **Victor Reiner**, University of Minnesota. *The photo space of a matroid.*

The *picture space* of a graph G is an algebraic variety $X(G)$ whose points correspond to arrangements of points and lines with incidences given by G . Many geometric and topological invariants of $X(G)$ can be described in terms of nice combinatorial properties of G . The *photo space* $\Phi(M)$ is an analogous construction in which G is replaced by a more general combinatorial object, a *representable matroid* M . Applications of the construction include generalizations of fundamental results of combinatorial rigidity theory. Some of the properties of $\Phi(M)$ are analogous to those of the picture space of a graph, but much remains to be discovered, including its defining equations and topology, as well as the relationship between photo spaces of different representations of the same matroid. (Received September 01, 2006)