1145-03-662   **Jeffry L. Hirst*** (`hirstjl@appstate.edu`), Department of Mathematical Sciences, ASUBox 32092, Appalachian State University, Boone, NC 28608. *Reverse mathematics and colorings of hypergraphs.*

Given a sequence of hypergraphs, how hard is it to select those with a two coloring? We answer this question using the framework of reverse mathematics. In the worst case, when the hypergraphs may contain infinite edges, the existence of the selection function is equivalent to $\Pi^1_1\text{-}\mathsf{CA}_0$ over the base system RCA_0. This is joint work with Caleb Davis and Jake Pardo. (Received September 12, 2018)