Blake Mellor* (blake.mellor@lmu.edu) and Riley Smith. Finite $N$-quandles of knots, links and graphs.

In this talk, we will investigate a generalization of the $n$-quandle for a knot, link or spatial graph. If a link or spatial graph has $k$ components or edges, and given a $k$-tuple $N = (n_1, \ldots, n_k)$ of positive integers, we define the $N$-quandle by adding relations $x^{y^{n_i}} = x$ to the full quandle whenever $y$ is an arc of edge $i$. The usual $n$-quandle is the case when $n_i = n$ for every $i$. In this case, Hoste and Shanahan provided a complete list of links where the $n$-quandle is finite, proving a conjecture of Przytycki. We extend the conjecture to spatial graphs and links where the entries of $N$ are not all the same, and provide evidence for the extended conjecture by computing finite $N$-quandles associated to a number of links and spatial graphs. (Received July 04, 2020)