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Sarah Goodhill, Adam M Lowrance* (adlowrance@vassar.edu), **Valeria Munoz Gonzales, Jessica Rattray and Amelia Zeh.** *Unknotting via region crossing changes.*

Region crossing change is an operation on a knot diagram where every crossing incident to a region or face of the diagram is changed. Shimizu proved that region crossing change is an unknotting operation. There are existing invariants that measure how difficult it is to unknot a knot using region crossing changes, such as the region unknotting number and the region index. We define a similar new invariant called the multi-region index. We derive a lower bound for the multi-region index of a knot coming from Goeritz matrices and compute the multi-region index for many knots in the tables. (Received February 20, 2020)