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Kokoro Tanaka* (kotanaka@u-gakugei.ac.jp), Department of Mathematics, Tokyo Gakugei University, Nukuikita 4-1-1, Koganei, Tokyo 184-8501, Japan, and **Yu Hashimoto**. *Quandle cocycle invariants and shadow cocycle invariants*.

Both of quandle cocycle invariants and shadow cocycle invariants are refinement of quandle coloring numbers. The formers are defined by using quandle 2-cocycles and the latters are defined by using quandle 3-cocycles. In this talk, we introduce a chain map for quandle homology groups and give a relation between two invariants. (Received January 27, 2019)