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**W Edwin Clark** and **Masahico Saito\*** ([saito@usf.edu](mailto:saito@usf.edu)). *Rotations of spherical polygons and quandle cocycle invariants*. Preliminary report.

The 2-sphere has a quandle structure by rotations of a constant angle, corresponding to a conjugacy class of  $SO(3)$ . We present examples of knot colorings by these quandles. For 2-strand torus knots, these correspond to spherical polygons, and for the figure-eight knot, to skew tetrahedra. These converge to Fox colorings. The obstruction to lifting these colorings to  $SO(3)$  with generalized Alexander quandle structures corresponds to the cocycle invariant. A relation to the roots of the Alexander polynomial is discussed, through Inoue's results on planar rotations. (Received September 09, 2016)