1063-57-209 **J. Scott Carter*** (carter@jaguar1.usouthal.edu), Department of Mathematics and Statistics, ILB 325, Mobile, AL 3668, **Alissa S Crans** (acrans@lmu.edu), 1 LMU Drive, Loyola Marymount University, Los Angeles, CA 90045, **Mohamed Elhamdadi** (emohamed@mail.usf.edu), Department of Mathematics, University of South Florida, Tampa, FL 33620, and **Masahico Saito** (saito@usf.edu), Department of Mathematics, University of South Florida, Tampa, FL 33620.
Categorical quandles and knots, III – the fundamental 2-quandle and colorings.

A *local arrow system of a classical knot diagram* is comprised of (a) a collection of arrows from an under-crossing arc to an over-crossing in a neighborhood of a crossing and (b) meridional arrows on each over-arc. A *coloring of a local arrow system by a strict* 2*-quandle* assigns objects to the arcs and morphisms to the arrows; the arrows must satisfy a collection of topologically natural conditions.

In this talk, we will examine the colorings of local arrow systems in the context of a presentation of the fundamental group that is obtained from the Dehn presentation by turning the associated handle-body decomposition upside-down. The tautological coloring (associated to a crossed module constructed from the fundamental group) is examined in this context. The Fox derivatives are applied to obtain a coloring by the Alexander 2-quandle. Finally, we will relate these constructions to the original definition of the Alexander polynomial that was given in Alexander and Briggs. (Received August 16, 2010)