

# Surface-links represented by 4-charts and quandle cocycle invariants

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**Abstract.** Any surface-link can be deformed into the closure of a surface braid of some degree  $m$  and can be also represented by an  $m$ -chart. In this talk, we will study the surface-links represented by 4-charts and their quandle cocycle invariant, and show the result related to the  $w$ -index of surface links.