

## On the sheet numbers of surface-knots

SHIN SATOH

An embedded closed surface in  $R^4$  is called a surface-knot, which is described by a diagram through a projection of  $R^4$  onto  $R^3$ . Such a diagram is regarded as a disjoint union of compact connected surfaces divided by crossing information. The sheet number of a surface-knot is the minimal number of such compact connected surfaces for all possible diagrams of the surface-knot. In this talk, we argue about a relationship between the sheet numbers and the quandle cocycle invariants, the quandle colorings, or the fundamental quandles. As a corollary, we determine the sheet numbers of  $k$ -twist-spun trefoils for  $k = 0, 2, 3$ .

KOBE UNIVERSITY