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**Uwe Kaiser\*** ([kaiser@math.boisestate.edu](mailto:kaiser@math.boisestate.edu)), Department of Mathematics, Boise State University, 1910 University Drive, Boise, ID 83725-1555. *On geometric Khovanov theory on surfaces*. Preliminary report.

I will discuss approaches to develop a geometric theory of chain complexes defined from curve systems on surfaces  $F$ , and bordisms between these curve systems, following the works of Dror Bar-Natan and Gad Naot. The goal is to study possible categorifications of the Kauffman bracket on surfaces. Such a categorification has been defined by Asaeda, Przytycki and Sikora. We are interested in understanding the geometric background of their construction, and possible modifications of their complex. If one restricts to links in  $F \times I$ , which are trivial in  $H_1(F, \mathbb{Z}_2)$ , then a categorical set-up can be defined with objects given by *unoriented* curve systems on  $F$ , and morphisms given by certain *composable orientable* bordisms between these collections. In general, the non-composability of orientable (opposed to oriented) bordisms suggests to work with objects and bordisms defined in some oriented category. (Received January 22, 2007)