**ICM 1998, Berlin, Aug. 18–27**

**Abstracts of Short Communications and Posters**

**Section:**

## 6. Topology

1991 MS Classification: 57Q15, 57Q45

Carter, J. Scott, University of South Alabama; Saito, Masahico, University of South Florida; Kauffman, Louis, University of Illinois, Chicago

### The Diagrammatics of Hopf Categories and Invariants of 4-dimensional Manifolds

The axioms for a Hopf Category, as developed by Crane and Frankel, can be used to define a state-sum invariant of 4-dimensional manifolds provided certain finiteness conditions hold. In this talk, we discuss the Hopf category associated to the Drinfeld double of a finite group. A coloring of the $(1,3)$-flags allows one to weight tetrahedra, triangles, and dual tetrahedra by cocycles to define such an invariant. We show a direct correspondence among the cocycle conditions, the coherence cubes, and the moves to triangulations of 4-manifolds. We relate other cocycles to the construction of invariants of knotted surfaces.