

**Ternary self-distributive cohomology and invariants of
framed links and knotted surfaces with boundary**

Emanuele Zappala

University of Tartu

emanuele.amedeo.zappala@ut.ee

Viktor Abramov

University of Tartu

viktor.abramov@ut.ee

Masahico Saito

University of South Florida

saito@usf.edu

In this talk I will describe how to construct certain state-sum invariants of framed links that utilize the cohomology groups of ternary self-distributive racks and quandles. I will argue that these invariants can be considered, in an appropriate sense, as quantum invariants and give examples from Hopf algebras and 3-Lie algebras, such as ternary Nambu-Lie algebras. Finally, I will explain how these ideas generalize to the case of (compact and oriented) surfaces with boundary knotted in the 3-space.