

ON LOW-RANK MULTIPLICITY-FREE FUSION CATEGORIES

GERT VERCLEYEN

As a unifying framework, fusion categories provide a powerful language transcending traditional disciplinary boundaries. Their applications range from the abstract domains of algebra, topology, category theory, and representation theory to the practical disciplines of quantum information and topological quantum computation. Despite their usefulness, there is a significant lack of examples of such categories and an even greater lack of explicit computational data to experiment with. In this talk, I will present some methods used to find all (pivotal) multiplicity-free fusion categories up to rank 7. I will also give a brief introduction to Anyonica, a software package that allows one to work with these categories, and the AnyonWiki, a website that contains data on these categories.