

# **Zesting anyons and symmetry defects**

Colleen Delaney

## 1. Abstract

Zesting is a construction that takes an anyon model and produces a new one by changing the fusion rules. On the one hand, this procedure is not terribly interesting from the point of view of topological quantum computation because the exchange-generated quantum gates that can be realized by a given theory are preserved. On the other hand, zesting turns out to be a useful framework for understanding interesting phenomena among topological orders, like Kitaev's 16-fold way and modular isotopes. After reviewing the theory of zesting and some examples through the lens of topological order we'll explain how the theory generalizes to symmetry-enriched topological order. Then we'll use this more general construction to give a new interpretation of zesting ordinary topological order as a 3-step process of defectification, changing the symmetry-fractionalization class, and symmetry-breaking.