

@UTK: Cosmic Coincidences and Several Other Stories

February-16-11

9:28 PM

In the first half of my talk I will tell a cute and simple story - how given a knot in R^3 one may count all possible "cosmic coincidences" associated with that knot, and how this count, appropriately packaged, becomes an invariant Z with values in some space A of linear combinations of certain trivalent graphs.

In the second half of my talk I will describe (rather sketchily, I'm afraid) a part of the story surrounding Z and A : How the same Z also comes from quantum field theory, Feynman diagrams, and configuration space integrals. How A is a space of universal formulas which make sense in every metrized Lie algebra and how specific choices for that Lie algebra correspond to various famed knot invariants. How Z solves a universal topological problem, and how solving for Z is solving some universal Lie-algebraic problem. All together, this is the u -story.

In the remaining time I will mention several other Z 's and A 's and the parallel (yet sometimes interwoven) stories surrounding them - the v -story, and w -story, and perhaps also the p -story. Each of these stories is clearly still missing some chapters.