A partial resolution to Hedden's conjecture on satellite (non) homomorphisms Allison Miller

A pattern, or knot in a solid torus, induces a map on the set of knots modulo smooth concordance. In 2016, Hedden conjectured that essentially none of these maps are group homomorphisms--more precisely, that the only homomorphisms induced by satelliting are the identity map, the reversal map, and the zero map. In particular, this would imply that patterns with winding number not in the set {-1,0,1} cannot induce homomorphisms. I will discuss work with Randall Johanningsmeier and Hillary Kim in which we prove that if P is a pattern with winding number that is even but not divisible by eight, then P cannot induce a homomorphism on the smooth concordance group. This relies heavily on previous joint work with Tye Lidman and Juanita Pinzon-Caicedo, and is the first result that obstructs all patterns of a fixed winding number from inducing homomorphisms.