

1124-53-72

Jo Nelson*, nelson@math.columbia.edu, and **Michael Hutchings**. *An integral lift of cylindrical contact homology.*

I will discuss joint work with Hutchings which gives a rigorous construction of cylindrical contact homology via geometric methods. This talk will highlight our use of non-equivariant constructions, automatic transversality, and obstruction bundle gluing. Together these yield a nonequivariant homological contact invariant which is expected to be isomorphic to SH^+ under suitable assumptions. By making use of family Floer theory we obtain an S^1 -equivariant theory defined over \mathbb{Z} coefficients, which when tensored with \mathbb{Q} recovers the classical cylindrical contact homology, now with the guarantee of well-definedness and invariance. This integral lift of contact homology also contains interesting torsion information. (Received August 28, 2016)